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Number 1

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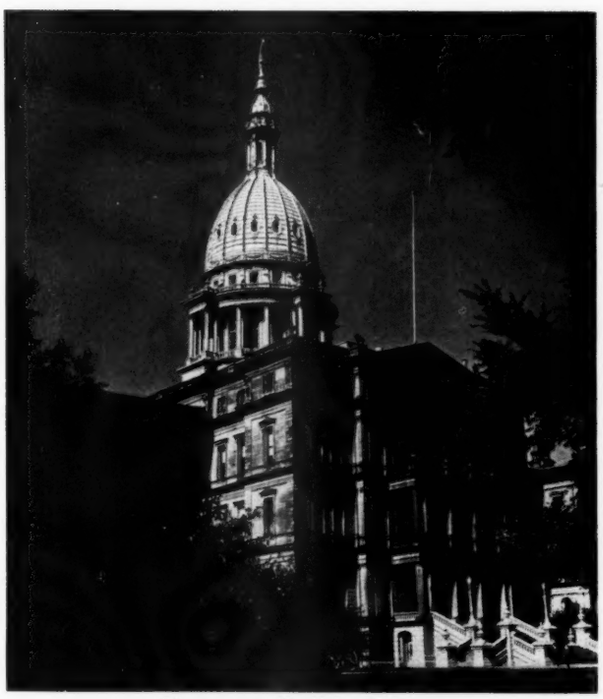

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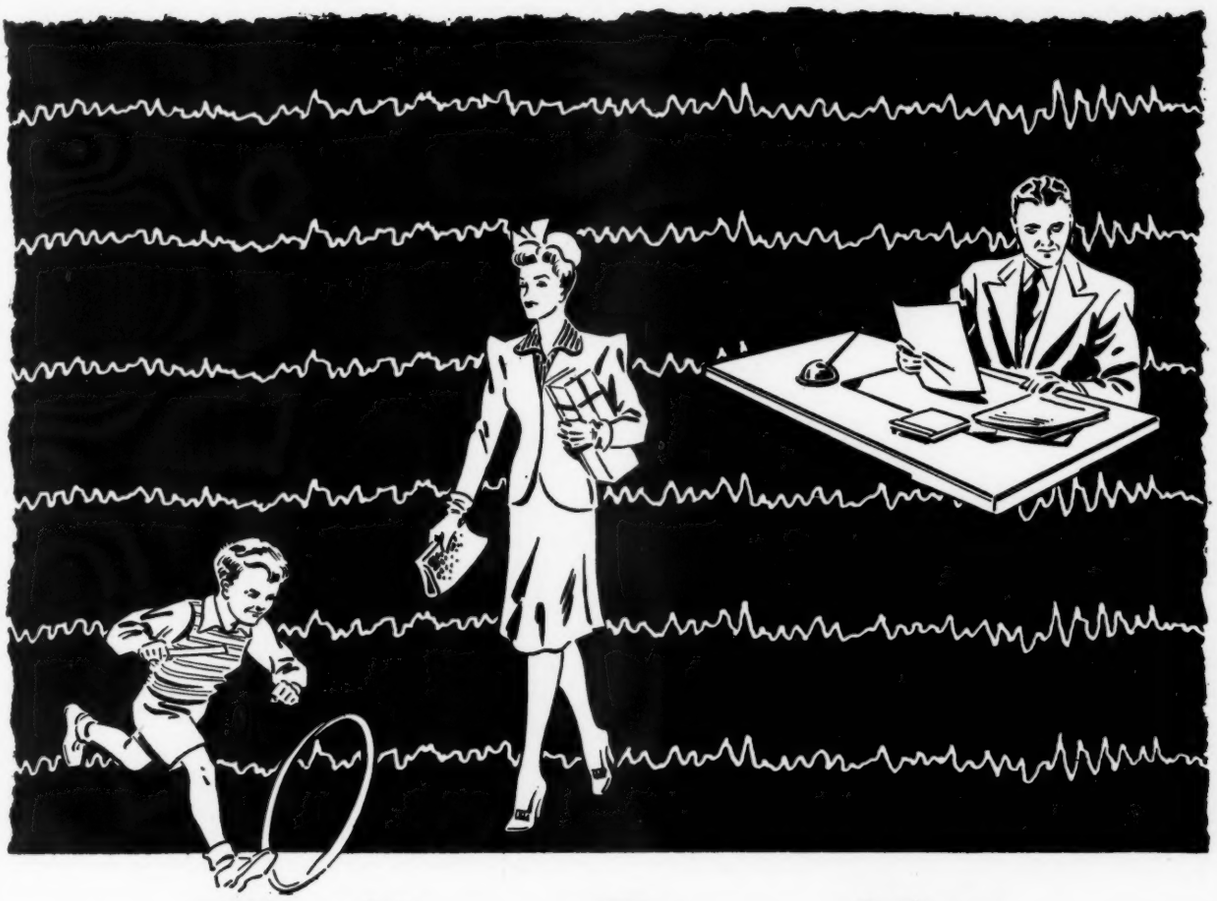

The Moving Finger Writes

OF MORE NORMAL, HAPPIER PEOPLE

THE oscillating "finger" of the electroencephalograph, recording abatement of abnormality of brain waves, tells but a part of the story of epilepsy treatment with Dilantin† Sodium. Fewer and less severe seizures, more normal social and economic life have been observed in many thousands of epileptic patients receiving this modern anticonvulsant.

Dilantin Sodium possesses "many advantages" in the control of epileptic convulsions.[1] For one thing it is, in many cases, superior in anticonvulsant effectiveness to phenobarbital or bromides, and—highly important—it is practically non-hypnotic. The inclusion of Dilantin Sodium (diphenylhydantoin sodium) in the new U.S.P. XII speaks volumes for its therapeutic importance.

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DILANTIN SODIUM

A product of modern research offered to the medical profession

1. Palmer, H. D. & Hughes, J.: *The Penn. Med. J.*, Aug. 1942

War Bulletins

Paul V. McNutt Replies

Dear Doctor Foster:

This will acknowledge receipt of the letter dated November 11 signed by you, Dr. P. L. Ledwidge, Dr. V. M. Moore, as the Committee of the Council, concerning the potentially serious situation among the medical profession of Michigan. I understand from the Procurement and Assignment Service that Michigan, as you have stated, has filled its quota for the time being and that the Recruiting Boards are not functioning in your State at the present time.

The State Chairman for the Procurement and Assignment Service has been informed that no further recruiting is to continue, and that the Army and Navy have agreed that they will not remove physicians from a State until they have been cleared by the Procurement and Assignment Committee. It therefore devolves upon the State Chairman and his Committee to see that, for the time being at least, there is no further depletion of physicians.

The Army and the Navy have agreed that in the event an occasional physician is needed for some particular work, the P. and A. Service may use its judgment in releasing such a physician for military duty.

I hope this will explain the situation, and if there is further depletion I would appreciate your letting me know because the State P. and A. Service should be watching the civilian medical care problem very carefully at this time, particularly in view of the fact that Michigan is a large industrial area and is contributing greatly to the war effort.

With kind regards, I am

Sincerely yours,
PAUL V. MCNUTT, *Chairman*
War Manpower Commission,
Washington, D. C.

November 19, 1942

Percentages of Medical Enlistments To 1942 Quota

Alabama, 204; Arizona, 156; Arkansas, 122; California, 81; Colorado, 124; Connecticut, 76; Delaware, 152; District of Columbia, 78; Florida, 118; Georgia, 149; Idaho, 162; Illinois, 82; Indiana, 136; Iowa, 116; Kansas, 114; Kentucky, 168; Louisiana, 214; Maine, 128; Maryland, 109; Massachusetts, 78; Michigan, 126; Minnesota, 98; Mississippi, 161; Missouri, 104; Montana, 122; Nebraska, 91; Nevada, 65; New Hampshire, 85; New Jersey, 107; New Mexico, 224; New York, 78; North Carolina, 163; North Dakota, 114; Ohio, 115; Oklahoma, 132; Oregon, 113; Pennsylvania, 93; Rhode Island, 92; South Carolina, 174; South Dakota, 137; Tennessee, 166; Texas, 147; Utah, 111; Vermont, 96; Virginia, 138; Washington, 126; West Virginia, 153; Wisconsin, 85; Wyoming, 158. These figures are as of October 31, 1942.

Memorandum (M-273 Revised)

To: All Local Boards and Appeal Boards

Subject: Classification of Doctors of Medicine and Dentistry.

1. Because of their professional capacities and because their occupations are classed as critical, the classification of Doctors of Medicine and Dentistry should be considered carefully.

2. The advice of the Procurement & Assignment Service should be obtained before consideration of classification as explained in Local Board Release No. 89, as amended April 28, 1942. The advice of the Procurement and Assignment Service should be followed closely. If, in the opinion of the Board, the Procurement and Assignment advice is contrary to their judgment, the cover sheet, together with pertinent data concerning the disagreement, should be forwarded to State Headquarters for review.

3. The dependency consideration with regard to family relationship is not different from all other registrants as provided in Local Board Release No. 123, as amended.

4. Doctors of Medicine and Dentistry should be advised about 60 days in advance when their classification is to be reopened and advised to take immediate action in the obtaining of a commission in the armed forces. If they take this action, sufficient time (usually about 90 days) should be given. Proper proof should be furnished your board of the action taken and of the progress of the same. If after advance warning, the registrant fails to take proper action, the usual processing for induction should be followed.

5. This memorandum supersedes and replaces Memorandum (M-273), dated May 8, 1942, and supplements Local Board Release No. 89, as amended April 20, 1942.

6. It must be remembered that a Local Board is disqualified from classifying one of its own examining physicians. (See paragraph 603.55(b) of the Regulations).

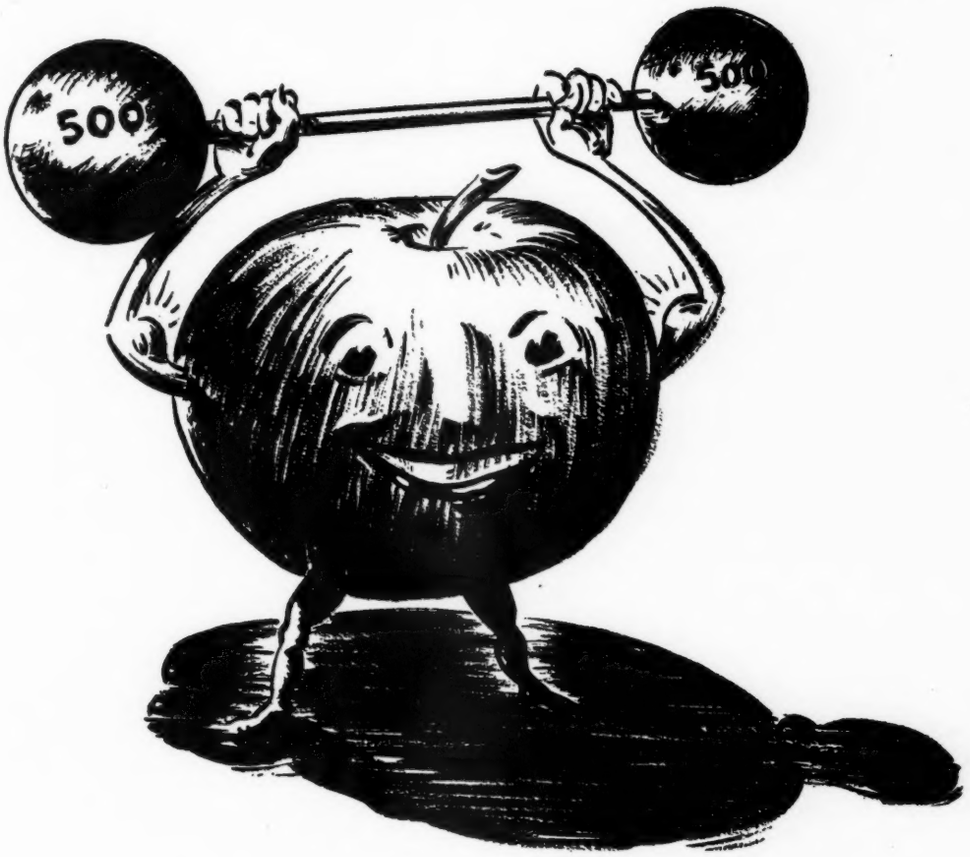
E. M. ROSECRANS, *State Director,*
State Selective Service,
Lansing, Michigan

November 12, 1942

The value of skin testing has been over-emphasized in recent years. Two important facts are frequently overlooked:

1. Skin reactions should always be correlated with the clinical history. A carefully taken history requires at least average intelligence and coöperation on the part of the patient, and diligence plus infinite patience on the physician's part.

2. Skin tests for foods are notoriously unreliable. Here the use of elimination diets and basic diets which include only a few foods, usually considered nonallergic, are of value.—S. M. JACOBSON, *W. Va. Med. Jour.*, Oct. 1942.



AT YOUR SERVICE, DOCTOR!

Big, juicy Michigan apples are all set to come to the aid of the party . . . and do their bit in maintaining health in times when food values are being watched more carefully than ever.

According to the best reports, apples are packed with health-giving vitamins A, B and C, as well as much needed minerals . . . calcium, phosphorus, iron, magnesium . . . and are a valuable source of fruit sugars. Because of their content of pectin and hemicellulose, colloidal substances, they also act as a corrective to both constipation and diarrhea.

Apples are one of the fruits recommended by the Department of Agriculture . . . easy to eat, easy to digest, and easily served in many delightful ways, both raw and cooked.

Nature Smiles on **MICHIGAN** *Apples*
FOR HEALTH . . . FLAVOR . . . JUICE

Michigan Medical Service

A study by Michigan Medical Service reveals that only 55 per cent of services for Michigan Medical Service subscribers were reported within the first month following the month of service. The remaining 45 per cent were reported anywhere from two months to two years late. This means not only that the doctor has been late in being paid, but also that Michigan Medical Service has experienced needless administrative expense. The doctor is urged to send in his Monthly Service Report as soon as possible after the surgery has been performed. This is a protection both for himself and for Michigan Medical Service, for reports received after ninety days from the month of service may not be authorized for payment by the Medical Advisory Board.

To speed up the handling of claims, as well as to conserve the doctor's time in filling out reports, the use of the Initial Service Report is being discontinued. In the future, it will be necessary to complete only the Monthly Service Report when reporting services rendered to subscribers. This action will be of little avail, however, without the doctor's coöperation in promptly reporting services which he has rendered.

Michigan Medical Service's books for the year of 1942 must be closed in January, 1943, in order to prepare the Annual Statement for the Department of Insurance. Physicians are requested to report all unreported services rendered in 1942 by the end of this month. Michigan Medical Service will not be able to make an accurate statement unless all cases for 1942 are reported by this time.

In the spring of 1941 benefits for anesthesia, when rendered by a doctor of medicine, were added to the Surgical Benefit Certificate. It was felt that this would not only be an additional benefit to the subscriber but would also encourage the growth in the field of anesthesia as a specialty of the practice of medicine. Statistics are now available to uphold this contention. During the first few months after this benefit was added, anesthesia was rendered by a doctor of medicine in only 2 per cent of the surgical cases reported on Michigan Medical Service subscribers. In the spring of 1942 this figure had risen to 4 per cent. At the present time, doctors of medicine are administering the anesthetic in 8 per cent of the cases reported on Michigan Medical Service subscribers. Periodic studies are being made to determine whether this geometric increase is continuing. The opinion has been voiced that perhaps this increase is due to the fact that so many nurse anesthetists have been accepted in the armed services. However, the fact that a much larger proportion of the doctors have been inducted in the services seems to obviate this conclusion.

Michigan Medical Service has paid to doctors for services to subscribers:

1940 (10 mos.)	**$ 172,115.00**
1941	**790,733.30**
1942 (11 mos.)	**2,104,132.92**
Total	**$3,066,981.22**
November 1942	**226,841.60**

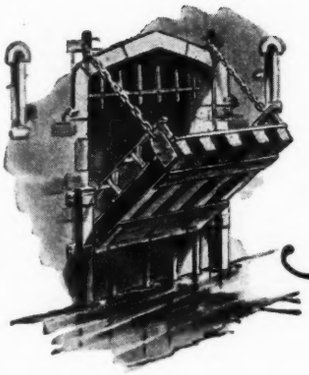
BED REST IN CORONARY THROMBOSIS

The term bed rest throughout this paper is used to mean complete rest in bed without bathroom privileges, and with the top half of the mattress elevated to an angle of from 30 to 40 degrees twenty-four hours each day. It has been my experience that the patient who is allowed bathroom privileges, frequently cannot understand why, if he is allowed to walk to the bathroom, he cannot also be allowed to sit in a chair and rest awhile out of bed at that time; or at some time early in the course of his illness he becomes restless and wishes to get out of bed more often and for longer periods of time. Doing so, of course, endangers his life. It has also been my observation that patients who are allowed bathroom privileges suffer more with cardiac or referred pain.

Most patients confronted with this condition are depressed by the thought that they have reached the end of all of life's activities; so happy are they who, at the proper moment, are impressed with the thought that if they remain in bed for three months, with a slow gradual return to activity thereafter, they can plan on a continued active life. They look forward to a return to work or play instead of a neurotic life in constant dread of continued cardiac pains or subsequent attacks of cardiac disease. This first attitude is possibly well exemplified by the case of the physician who retires and lives a life of fear, possibly because he has not submitted to sufficient bed rest to allow nature to complete its repair process. It is, therefore, my opinion that a minimum of three months' bed rest in all cases of coronary thrombosis should be established, for there is no adequate way at present, of determining that even the apparently minor cases of coronary thrombosis are not potentially deadly if the patient is allowed early freedom from bed rest.

Data have been presented to show that the healing process of coronary infarction is not complete in one or two months, the usual period of bed rest advised.

In view of this conclusion and in the absence of infallibility in determining the severity of the infarction, a minimum of three months' bed rest is recommended for the patient in all cases of coronary thrombosis. JAMES A. BRADLEY, M.D., Sept. 1942 *Jour. Fl. Med. Assn.*



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Any potent drug should be administered under medical supervision, and Benzedrine Sulfate* is no exception.

In medical literature, the majority of the reports of undesirable reactions attributed to Benzedrine Sulfate have been traceable to cases of indiscriminate or unsupervised use. This is equally true of the often magnified and sensational reports in the lay press.

Obviously, these unfavorable reports greatly retarded the wider clinical use of this valuable therapeutic agent. From the very beginning, Smith, Kline & French Laboratories—as a matter of business judgment, to say nothing of ethical considerations—did what it could to keep Benzedrine Sulfate solely in the hands of the medical profession.

But our own unaided efforts never met with complete success. And, understandably concerned over the possibility of self-medication, certain physicians hesitated to employ Benzedrine Sulfate therapy.

However, when the Federal Food, Drug & Cosmetic Act of June, 1938, became effective, we immediately put Benzedrine Sulfate in the category of drugs to be sold on prescription only. The Act is strictly enforced and is supplemented by similar legislation in many states. Today, as a result, the physician can prescribe Benzedrine Sulfate, secure in the knowledge that there is little likelihood of its abuse.

**Brand of amphetamine sulfate*

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For the convenience of physicians Mercurochrome is supplied in four forms—Aqueous Solution for the treatment of wounds, Surgical Solution for preoperative skin disinfection, Tablets and Powder from which solutions of any desired concentration may readily be prepared.

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is economical because solutions may be dispensed at low cost. Stock solutions keep indefinitely.

Mercurochrome is accepted by the Council on Pharmacy and Chemistry of the American Medical Association.

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Reading Notices

CIBA AWARDED MINUTE MAN FLAG

In recognition of more than 95 per cent participation in the federal payroll savings plan, a Minute Man flag has been presented to the Ciba Pharmaceutical Company of Summit, N. J., by the United States Treasury Department War Savings Staff.

The presentation was made by W. H. Hassinger, Deputy Administrator of the War Savings Staff, and a speech of acceptance was delivered by J. J. Brodbeck, executive vice president and general manager of Ciba.

DEXTRI-MALTOSE WITH YEAST EXTRACT AND IRON—NEW PRODUCT

This product supplies vitamin B complex and ferrous sulphate in important amounts, as well as carbohydrate, in the infant's milk formula. It represents a considerable advance over previous similar Mead Johnson products, as follows:

1. There are now four tablespoonfuls to the ounce instead of six;
2. The patient now receives 16 ounces per can instead of 12, without increase in retail price.

For further information, please write to Mead Johnson & Company, Evansville, Indiana.

WILLIAM T. ANDERSON IN SERVICE

William T. Anderson, Jr., M.D., for nearly twenty years director of the radiation research laboratory of the Hanovia Chemical and Manufacturing Company, Newark, N. J., has been granted a leave of absence to accept a commission as a Lieutenant in the Naval Reserve, Dr. Charles Engelhard, president, has announced.

In making the announcement, Dr. Engelhard, a pioneer in the field of ultra-violet and infra-red therapy since 1906, paid tribute to Lt. Anderson and revealed for the first time that the latter's recent inventions and researches were benefiting all branches of the armed forces as well as civilians.

"Newest developments made in mercury arc lamps by Lt. Anderson, chiefly in the structure of the electrode, have resulted in the saving of 98 per cent of highly critical mercury while at the same time improving the product," Dr. Engelhard said. "His research just completed has definitely proved that the activated electronic electrode is better than the nonactivated type in mercury arc lamps."

MALE HYPOGONADISM

An interesting report on male hypogonadism (eunuchoidism), in which the patient happens to be an anonymous 32-year-old physician, was presented by J. P. Pratt, M.D., of the Henry Ford Hospital, in the *Journal of Clinical Endocrinology* (Vol. 2; No. 7, 1942). The patient, obviously in an advantageous position to view the state of his own progress, received methyl testosterone (orally effective male sex hormone, Oreton) for a period of approximately one year. Although a lack of sexual interest and ability was evident in the patient, Dr. Pratt indicates that the distinct social handicaps of effeminate appearance and high-pitched voice were of much deeper concern prior to therapy. Thus, the patient "felt embarrassed in the presence of strangers because of his high-pitched voice, lack of beard, unmasculine contour and youthful appearance. No doubt the patient was unduly sensitive regarding these points, but long years of being called 'Madame' over the telephone had sensitized him."

Although objective results of therapy were found most encouraging, including as they did, marked increase in size of penis (three-fold), active libido, pubic hair development and more heavily pigmented skin, Dr. Pratt reports that the "fairly marked lowering of the vocal pitch . . . is the most gratifying to the patient of all the responses. He no longer is subject to telephone difficulties."

In reporting that the therapeutic effects of the oral form (methyl testosterone), when used in proper dosage, are as great as those achieved by injection or pellet implantation, Dr. Pratt concludes that "oral therapy appears to be the choice in adult hypogonadism."

WINTHROP CHEMICAL COMPANY MERGES WITH ALBA PHARMACEUTICAL COMPANY

Winthrop Chemical Company, Inc. absorbed Alba Pharmaceutical Company, Inc., on January 6, 1943, and has taken over Alba's assets, property, trademarks and good will.

"Although Alba ceases to exist," Mr. Hill said, "its research and manufacturing facilities in Rensselaer, N. Y., have been consolidated with those of Winthrop. Its marketing policies remain undisturbed." Dr. J. Mark Hiebert, medical director of Alba, becomes assistant to Dr. Theodore G. Klumpp, Winthrop president, devoting himself largely to that company's expanding program of medical research. Other Alba personnel will be absorbed by the surviving company.

"During the past year, Winthrop has broadened its research program," Mr. Hill said, "and the merger will permit of even further expansion in that direction. Winthrop is perhaps best known for its research in and production of Atabrine, a synthetic substitute for quinine in the treatment of malaria. It also produces many other drugs for the Armed Forces."

As a result of the merger, Fairchild Brothers and Foster, a wholly-owned subsidiary of Alba, has become a wholly-owned subsidiary of Winthrop.

Alba Pharmaceutical Company was incorporated in New York on August 30, 1935.

Medical
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The JOURNAL

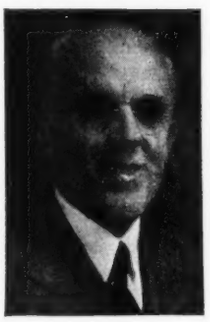
of the Michigan State Medical Society

ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

VOLUME 42 JANUARY, 1943 NUMBER 1

The Preventive Aspects of Maternal Mortality*

By Philip F. Williams, M.D.
Philadelphia, Pennsylvania



PHILIP F. WILLIAMS

M.D., School of Medicine, University of Pennsylvania, 1909. Professor of Clinical Obstetrics and Gynecology, University of Pennsylvania; Gynecologist and Obstetrician, Philadelphia General Hospital and Jewish Hospital; Obstetrician, Presbyterian Hospital.

An outstanding feature of practically all studies on maternal mortality is the high proportion of deaths regarded as avoidable. Responsibility for controlling such deaths has been assigned to patient, physician and the community. In the Philadelphia study, continuous since 1931, seven factors have been used in *the final analysis of the casess* AVQ *Lack of prenatal* care; (2) negligence of patient or her friends; (3) induction of abortion; (4) error in judgment; (5) error in technique; (6) intercurrent disease; (7) unavoidable disaster.

Each factor will be discussed from the standpoint of controllability.

■ THE wave of interest in maternal welfare which has swept across this country in recent years has stimulated many types of activity in the subject.

A few of these are the aspects covered by the section on Maternal and Child Health, of the Social Security Act, administered by the Children's Bureau and the underlying Bureaus in the State Departments of Health, the splendid constructive work on education of the laity by the Maternity Center Association. The formation of the American Committee on Maternal Welfare, representing some thirty professional and allied societies with their production of the motion picture film, "Birth of a Baby," and their organization of the two Congresses on Obstetrics and Gynecology. The setting up of the National Council of Mothers and Babies has stimulated and directed work on maternal and infant welfare by some sixty lay groups with a nationwide scope of membership.

Finally, and largely responsible for the remarkable decrease in the maternal mortality rates of our cities and states, has been the formation and the active interest of local maternal welfare committees and commissions. While the extent and method of the studies and surveys of such groups have varied widely the end results have been beneficial by promoting better obstetric standards and practices. Probably the most popular type of study has been the investigation of the maternal deaths in an individual community. The original survey of this nature was suggested by the Obstetric Advisory Committee of the Children's Bureau, and was carried out by the Bureau, the report appearing under the title, "Maternal Mortality in Fifteen States." In this report occurs a statement by the Advisory Committee that the high mortality during delivery and the postpartum period is largely due to controllable causes. In many of the chapter conclusions reference is made to the preventability of such deaths.

The report, in 1933, of the Committee on Public Health Relations of the New York Academy of Medicine, "Maternal Mortality in New York City, a Three-Year Study," first expressed statistically the preventability of a large group of maternal deaths. They regarded 65.8 per cent of 2,041 deaths in New York as being preventable, if the best possible skill of the community had been available. This remarkably high figure was the

*Read before the Seventy-seventh Annual Meeting of the Michigan State Medical Society at Grand Rapids, Michigan, September 24, 1942.

occasion of much discussion. The criteria upon which this finding was based were clearly stated and not at all unreasonable. The following year, 1934, a Committee of the Philadelphia County Medical Society, in Three-Year Study Report, modified the basic criteria so far as the physician was concerned to a reasonable degree of skill and learning and the use of reasonable care and diligence in the exercise of that skill and the application of that learning. Preventability was regarded present in 56.7 per cent of all deaths studied.

The responsibility for maternal deaths, and the general status of obstetric practice and maternal welfare must be regarded as resting primarily with the medical profession. In a different sense the patient is often responsible, in the same sense one might blame the community or the board of trustees of a hospital. Among the latter groups there is little or no knowledge of the basic principles of maternal welfare. Their education in such matters and to a degree deemed advisable rests upon physicians. This education, however, has to be based upon a thorough realization of the problems of an individual community, and the deficiencies of its maternal care.

A survey of maternal deaths shows up the worst results and the poorest obstetric practice. It points out most strikingly those errors of omission and comission which should be rectified. A simple recital of a number of such examples is shocking at first hearing, but probably will be forgotten unless repeated.

In order to continue exposing the substandard practices and reiterate the manner in which they might be corrected, with extension of such education to the public in the proper manner the Philadelphia Committee continued its original survey as an open monthly forum since the summer of 1933. It has felt necessary to denote the controllability of maternal deaths in order to focus sharply the attention of the ever-changing audience to the most evident element of such control. To this end we have used seven factors in the final coding of the discussion of preventability and responsibility.

Prenatal Care

The first of these factors is lack of prenatal care. By this is meant not only quantity but also the quality. Entire lack of any supervision during pregnancy remains a fault of obstetric practice in large groups by reason of ignorance or poverty or location. It is little wonder then that dire obstetric emergencies are constantly admitted to our maternities. Inadequate supervision often tends to the same situations. Adequate routine visits with blood pressure readings, urine examinations and weight estimations, and physical examinations does much to prevent complications of pregnancy. To such routine care, however, must be added sufficient study of the patient to forewarn one of the possible complications of labor, and to prepare for their correct management.

A pregnant woman then needs to be instructed in the proper care of her health during pregnancy and specifically of such items as intercourse as well as the proper preparation of her home if she is to be delivered there. Such care is informative but it must be supplemented, as Bingham advises, with preventive care in which the patient is told what measures she can take to avoid certain complications as toxemia, anemia, and overweight. The patient must be informed of the earliest symptoms which point to danger, and instructed to report them promptly.

A pregnant woman's medical attendant must know what constitutes preventive care study and education of his patient, and apply it constantly to each woman under his supervision.

A dozen cases where lack of prenatal care was ascribed as the avoidable factor were pulled at random from the files. Two hyperemesis cases gave a history of no care until referred to hospital in extremis. Another such case treated successfully in a hospital and discharged at the second month was not seen again until she appeared three months after a long relapse. She was unable to regain sufficient strength to permit termination of the pregnancy and died. The next few charts showed a history of no prenatal care and progressive toxemia in the later months culminating in convulsive type of toxemia, recovery from which could not be attained. One example of lack of prenatal care which was repeatedly seen during the years of our study consisted in faulty estimation of the physician of the severity and advance of toxemia in a woman cared for at home. This type of fault led to the widespread adaptation of a rule in the prenatal clinics of our hospitals that all pregnant women should be admitted for observation and study who presented a blood pressure of 130 or 90, or who showed a rise of twenty points in either reading from the previous estimation, or who showed objective or

subjective symptoms of toxemia. This rule worked all right for a time. Then some cases were noted where such admission and study had been carried out, the patient improved and discharged. The next appearance was re-admission by ambulance or patrol in convulsive toxemia. The clinic routine was then amended that all patients once admitted for toxemia, should, if discharged before delivery, be seen at least weekly in clinic or in their homes. This insistance on constant oversight of toxemia cases has been effective in reducing the number of such histories in recent years.

A lack of prenatal care was seen in such other cases, as a nonseptic abortion whose persistent bleeding led to a fatal anemia; in another case this factor was regarded as present through the nonrecognition of the physician of the symptoms, abdominal pain and progressive shock, of ruptured tubal pregnancy. There was noted the disregard, of patient in one instance and physician in another, of the significance of painless hemorrhage in placenta previa. The lack of personal hygiene and the lack of home hygiene and unclean delivery surroundings were pointed out clearly in deaths from sepsis. The nonrecognition of physical factors leading to obstructed labor, with various types of fatal endings, resulted from neglect on the part of patient in not seeking care or from inadequate examination on the part of the physician.

Negligence

The second avoidable factor, negligence of the patient or her friends, has been used to include various reasons for placing the responsibility for a maternal death upon the patient or her family.

Negligence and ignorance frequently cause a patient to assume responsibility of complications occurring during pregnancy without reporting to her physician or to a clinic; particularly has this been true regarding medical complications. The same reasons have caused patients to refuse to accept hospital care when advised to do so by a physician. Again the refusal of a patient or her family to permit interruption of pregnancy in toxic vomiting or known grave renal or cardiac lesions has been ascribed to this factor of negligence.

A review of a group of maternal deaths will show how serious a problem this is. In our first published Philadelphia report, we felt that two of every three preventable deaths for which responsibility was placed on the patient were caused by lack of coöperation due to ignorance and negligence. Typical examples in a random sampling show a multipara, para 8, refusing hospitalization for the hemorrhage of an abruptio-placenta. An eight-hour delay in admission, in spite of emergency transfusion, caused death before any method of delivery could be attempted.

Another patient signed the release book during treatment for hyperemesis. Her death occurred eight days later on emergency admission to a second hospital. Two cases of refusal of suggested therapeutic abortion for intractible vomiting were followed by exitus. Again, a woman with rising blood pressure and edema persisted on continuing employment until eclampsia developed.

A case of sepsis. Normal delivery in one hospital, discharged on twelfth day. Immediate resumption of marital relations. Admitted with sepsis, generalized peritonitis, one week later in a second hospital. Treatment of no avail.

Postpartum hemorrhage in negro multipara following unattended home delivery of twins. Medical assistance was not sought until after fatal anemia had developed.

Ruptured ectopic gestation. Abdominal pain and vaginal bleeding were present for ten days before a physician was called. Transfusion and operation soon after admission followed by death from anemia and shock. And so the story goes on and on of avoidable factors which widespread education of the public in the elemental principles of maternity hygiene and significance of the earliest danger signals could largely eradicate.

Abortion

The induction of illegal abortion whether by the patient or an agent procured by her has been regarded as an avoidable factor in puerperal deaths. In such instances the death has been regarded as preventable and the patient regarded as responsible.

There are, no doubt, certain spontaneous abortions which become septic, either from poor personal hygiene, neglect or entrance of infection during operative treatment. They form a small percentage of infected abortions. The consensus of opinion among the group which analyzes the maternal deaths in Philadelphia is that the treatment of the illegally induced septic abortion is a

medical problem and that intra-uterine interference is indicated only for life-threatening hemorrhage. Where surgery is practiced, except to promote drainage by removing tissue from the cervix, or to evacuate pelvic collections, and potential or active intra-uterine infection is spread with fatal termination, the responsibility for the death is usually assigned to the physicians.

Criminal abortion has been practiced since time immemorial. Sociologists, economists, physicians and the legal profession have fully discussed this problem. Two solutions present themselves: one, the education of the public by every possible means of the dangers inherent in illegally induced abortion; the other an equally widespread dissemination of education regarding planned parenthood.

Error in Judgment

Errors in judgment have been regarded as an avoidable factor in many cases. In the first series of cases studied in Philadelphia, two thirds of the preventable deaths ascribed to physicians came under this category. It is not an easy matter to assign this avoidable factor. In each instance the decision reflects upon the competence and reasoning of the attendant. It is easier to sit in arm-chair judgment on a maternal death than it might be to face some difficult obstetric situation. Hindsight is more facile than foresight. Kerr has well expressed this situation when he states:

"Obstetric surgery is in marked contrast to general surgery. In the latter, when operation is deemed necessary, the procedure is well defined; only occasionally has the surgeon any difficulty in deciding between alternative procedures. Technical skill is all-important. In obstetric surgery, on the other hand, judgment in the choice of procedure and in the time to interfere may make all the difference as regards success or failure. This can only be learned by long experience, accurate observation and constant practice."

Today, competence in obstetric judgment is available by graduate training. However, the opportunities afforded by residencies are few in number when compared with the widespread need for adequately trained men. Probably, we have not made the greatest use of the material which is available. Personally, I do not feel that refresher courses can do much toward elevating the level of obstetric judgment. If such courses can bring to a man a realization of his own obstetric limitations and an ability to recognize what is not normal early in pregnancy or in labor, they have accomplished much.

The avoidable factor, error in judgment, was operable in a series of cases of ectopic gestation through faulty diagnosis, delay in operating, too much operating in some cases, as in incidental appendectomy in a blood-filled abdomen, correction of other pelvic pathology, or the omission of transfusion as a supportive measure. This factor was applied to cases of placenta previa where the choice of means to control hemorrhage, as vaginal packing, was questionable, or where induction of labor was instituted in the hope of a vaginal delivery, or where the uterus was not packed after delivery or blood transfusions not used. The last two omissions were frequent errors of judgment in deaths from premature separation of the placenta and postpartum hemorrhage.

Where death resulted from septic infection the time and type of interference most frequently formed the basis for assigning the factor error in judgment. Failure to realize the significance of objective symptoms of toxemia, failure of hospitalization of such patients, abrupt surgical treatment of convulsive toxemias on admission, were among the errors of judgment in this cause of death.

Error in judgment was regarded as a principle factor in several cases where rupture of the uterus occurred in a pregnancy following cesarean section where the woman was allowed to go to term with rupture occurring in labor. The patient with a previous cesarean who is allowed to deliver vaginally in a succeeding pregnancy must necessarily be a very well selected case.

The choice of anesthesia has frequently been included in this classification of preventability. Thus the use of chloroform for the delivery of an eclamptic was looked on with disfavor, as was also the use of nitrous oxide oxygen for prolonged anesthesia in vaginal deliveries. The use of spinal anesthesia is not frequent in obstetric practice in Philadelphia and has been regarded as ill chosen if death occurred during its use.

Errors in Technique

The improper management of the third stage of labor resulting in inversion of the uterus in several instances was regarded as error in judgment.

An extreme degree of multiplicity of operative maneuvers to deliver a patient who might have been regarded originally as a subject for elective cesarean section was classified as an error in judgment. One case might well have been included in yesterday's remarks on prolonged labor in contracted pelves. This was reported early in the study. After a fifty-five-hour labor in a woman with a pelvic inlet contraction, the cervix was manually dilated and forceps applied. When delivery failed, axis traction forceps were tried, then version was attempted. A consultant repeated the same procedures also unsuccessfully and then resorted to craniotomy. As it was impossible to deliver the body a classical cesarean section was performed. The patient died shortly of shock.

The inclusion of error in technique as an avoidable factor as distinguished from error in judgment was done to classify specifically a certain small group of cases. If we regard error in judgment as a choice of the wrong manner or method in caring for any particular situation we may regard error in technique as the performance of a presumably correctly chosen method or operation in the wrong way or in such a manner that the patient subsequently died. Probably the largest group of such examples occurred in the deaths from puerperal sepsis, and largely in those which followed operation.

The committee in Philadelphia has long held where a patient enters hospital in a normal condition with no apparent infection, and after delivery dies of infection, that such a death is preventable. There have been many arguments over such histories. The views of Colebrook and Watson are familiarly quoted in the meetings, and it is exceptional that this coding does not apply.

The fact that all maternal deaths have to have a preliminary assessment by the individual hospital obstetric staff conference brings up sharply to the smallest and most intimately concerned group the technique of their delivery rooms and operating suites when such cases are brought before them. Instances of septic infection ascribed to errors in technique have been found with practically all types of obstetrical operation. Particularly, has this avoidable factor been assigned in forceps or version deliveries when trauma has occurred with death resulting from shock, or in certain instances of gross mishaps in the third stage.

Unpreventable and Preventable Mortality

While it is realized that much of the present maternal mortality could be controlled there are mortalities even with the best available treatment. Such cases are not infrequent. We have termed them unavoidable disasters. In this manner we regard cases of hemorrhage either ante partum or postpartum, when treated promptly and in an accepted fashion with what would appear adequate supportive measures. Certain cases of ectopic gestation if prompt and adequate treatment was given have come under the heading. Toxemic bleeding carefully evaluated from the standpoint of recognition and treatment of the toxemia and its associated hemorrhage have been included here. Such conclusions have only been made after every fact materially influencing the reliability of the decisions has been given the fullest weight.

A fair proportion of maternal deaths do not come under the statistical coding of puerperal causes of death. We have included in our study of maternal mortalities the deaths of pregnant women from every cause in order to bring out the pathological background against which our obstetrical practices are based.

Such deaths from chronic infections, cardiac lesions, renal degenerative, pulmonary infections, lighted up by pregnancy or acute infections as pneumonia, influenza or bacterial endocarditis complicating pregnancy, and particularly surgical lesions or metabolic disorders are labelled intercurrent disease. Such cases are not included in puerperal vital statistics, but a discussion of deaths of pregnant women from medical or surgical diseases constantly serves as a stimulus to the more efficient oversight of pregnant women with minimal extra-genital lesions or diseases in hospital clinic or private practice.

There are other factors which play a part in causing maternal mortality. They may be termed accessory factors. Some of them can be assessed as to their influence, others are undoubtedly potential factors, yet their specific influence cannot be measured. The latter include such general conditions as the character of the population of a given area, the type of housing and overcrowding, the economic status, the nature of attendance, general health of the community and the personal hygiene and mode of life of the individual.

We, as busy obstetricians, may not pay much attention to these factors but in any program of

maternal welfare with wide ideals they must be considered.

The problem of preventing maternal mortality is in my opinion not a difficult one to solve. The responsibility for the solution of this problem rests upon the medical profession, even though patients and community are also implicated in the problem.

The solution must consist in education, continuous education, of all concerned. Long and constant repetition of the preventable factors may be necessary to develop an obstetric conscience and an interest in the medical profession. Once such interest has been quickened other avenues of attack can be opened, the education of the patient and her family arranged for, and community interest aroused.

This is not a difficult task. In only ten years in Philadelphia our committee led the way to a 62 per cent decrease in the maternal mortality rate, a 40 per cent decrease in the stillbirth rate, the institution of group education in maternity hygiene in the prenatal clinics of almost all the larger hospitals, the institution of a series of talks to prospective fathers three times a year at the County Medical Society Building, and the formation of committees to study fetal and neonatal deaths. Practically every hospital maternity division staff in the city now has its own periodic staff conference to intimately examine into its own mortalities, morbidities and intramural problems. When our recent ordinance regarding notification of premature births, copied from Chicago Board of Health, became effective, lay organizations of the city promptly supplied several institutions with incubators and air-conditioning units for nurseries. This was visible evidence of community interest in our problems.

The education of those concerned must always be regarded as a continuous line of assembly. New patients, new physicians, new hospital trustees and newly arrived civic leaders must always be kept informed of our ideals, our problems and our needs in preventing maternal, fetal, and neonatal mortalities. This problem as it may apply to Michigan is in your hands for solution.

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County and State Society Dues Are Payable Now.

Pregnancy Complicated by Acute Anterior Poliomyelitis*

By J. William Peelen, M.D.
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The occurrence of disease and pregnancy simultaneously is not uncommon. The association of pregnancy and acute anterior poliomyelitis has been rather infrequent, if a review of the literature is a criterion.

Twenty-nine cases reported in some detail have been reviewed, and two new cases have been added. In addition twenty-eight cases are incompletely reported.

Acute anterior poliomyelitis being an infectious disease immediately raises many questions. The most important conclusions obtained from this study are: the usual course of pregnancy does not change; the type of paralysis and complications will determine whether interference with the pregnancy is necessary; and it has not been proven that intra-uterine poliomyelitis occurs.

Few diseases prevent the possibility of gestation; neither does pregnancy immunize a woman against disease. Practically every known disease at some time has been encountered in a pregnant woman. The association of pregnancy and acute anterior poliomyelitis probably occurs more frequently than is reported in the literature.

The first case was reported by Shell[24] in 1906. Since then single cases have been reported at infrequent intervals. The literature was reviewed by McGoogan[15] in 1932 revealing five cases to which he added three of his own. In addition to the completely reported cases, Kleinberg and Horwitz[13] mention a series of thirteen hitherto unreported cases but give no detail. Aycock[1] in 1941 discussing the frequency of poliomyelitis in pregnancy reported the largest series yet on record. Twenty-eight of these cases have previously been reported in the literature and in addition twenty-eight cases, none in detail, had come to the author's attention either by observation or personal communication. Two more cases were reported recently and I am presenting two

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of my own. This discussion will include for the most part those cases which have been reported in some detail. Table I gives a brief summary of the cases.

The following two cases occurred in my practice in 1940:

Case 1.—Mrs. M., aged twenty-nine, para I, gravida II, was admitted to Fairmount Hospital on September 9, 1940. She had been sick for two days. A spinal puncture had been done before admission with a diagnosis of acute anterior poliomyelitis. Her complaints on admission were leg ache and abdominal cramps. The abdominal cramps continued throughout the quarantine period.

I first saw the patient on September 21, 1940, after she was transferred to Borgess Hospital. At this time there was a partial paralysis of both lower extremities and the right shoulder girdle muscles.

Her last menstrual period began on December 27, 1939. Past history was essentially negative. Previous labor eight years ago was normal. The present pregnancy had been uneventful until the patient became ill with poliomyelitis. She was discharged on September 26, 1940. Physiotherapy was continued at home.

The patient was re-admitted to Borgess Hospital on October 3, 1940, having a few irregular uterine contractions and slight bloody show. Active labor began spontaneously the following day. After eight hours of labor the patient was delivered with outlet forceps of a normal baby. The third stage proceeded without incident. The patient had complete amnesia and analgesia for four hours before delivery. Nembutal gr. 7½ and scopolamine gr. 1/150 was used. She had a normal puerperium. Mother and baby were discharged on the eighth postpartum day.

At the present time, two years later the patient is able to be up and around with the aid of crutches and leg braces. The baby is well.

Case 2.—Mrs. K., para II, gravida III, came in on August 28, 1940. Physical examination was essentially negative. During the fourth month of gestation, the patient was awakened early one morning by nausea, vomiting, and severe headache. Her temperature was 103° F. These symptoms gradually disappeared during the next two days. There was no diarrhea. For four days following the onset of the illness the legs ached from the hips down. She was in bed five days. On the second day of her illness she noticed her face was drawn toward the left side and that some paralysis of the right side of the face was evident, mainly about the right angle of the mouth and slightly of the right eye. Food drooled from the right side of her mouth. The right eye could be closed with some effort. On extension of the tongue there was protrusion toward the left for two days. Reading became difficult on account of blurred vision, but there was no diplopia. No paralysis was noted elsewhere. However, she found it difficult to hold her head up. On one occasion the patient was slightly dizzy. For a short time tinnitus was present in the right ear. Numbness of the right side of the face was noticed on the sixth day of the illness. My first impression was acute food poisoning. After the paralysis occurred, I considered "Bell's Palsy". The patient was referred to Dr. Richard U. Light, who made the diagnosis of anterior poliomyelitis affecting the right seventh cranial nerve. It involved chiefly the right half of the lower lip, to some extent the upper lip and very slightly the muscles about the eye.

The patient was next seen at the office seven weeks after the onset of the disease. Routine examinations were normal. She returned one month later. During this time the abdomen had greatly enlarged, the fundal height being twenty-six centimeters above the symphysis pubis. Fetal heart tones were strong and the rate was 132. A tentative diagnosis of either acute polyhydramnios or multiple pregnancy was made. Three weeks later at the time of the routine prenatal examination, the patient stated that she "had not felt life". Fetal heart tones were not heard. The abdomen was smaller than at the last examination. She was seen at one to two week intervals until her labor began sponstaneously at the beginning of the ninth month; about four months after the onset of poliomyelitis and two months after the patient last felt fetal movements. Labor was rapid. The fetus presented a footling breech. The other foot was brought down and the fetus was extracted until the umbilicus was just outside the vaginal introitus. It was fixed at this level and upon examination it was evident that a short cord was the cause. The cord was clamped and cut. Then the stillborn fetus was delivered without difficulty. The third stage was normal. On inspection of the cord and placenta, it was noted that the cord had been twisted over and over shortening it considerably. This may have been the cause of the stillbirth. No abnormalties were found on the macerated male fetus. The puerperium was entirely normal.

One year and a half later, the facial paralysis is evident only when the patient is very tired.

Possible Etiological Factors in the Onset of Poliomyelitis

In 1931 the *Journal of the American Medical Association*[20] stated that "although there are no statistics available on the occurrence of poliomyelitis during pregnancy, some observers have the impression that the disease occurs in the later months of pregnancy more often than would be expected if it were only a coincidence. If this proves to be the case, it would suggest that some physiologic alteration during pregnancy may affect susceptibility to infection with poliomyelitis".

In 1932 Junglebut and Engle[11] stated "that both early pregnancy and infancy are the high water marks of natural resistance to poliomyelitis. Their reason is that higher antibody titers are commonly found in gravid than in healthy non-gravid persons."

TABLE I.

Case No.	Author	Age	No. of Preg.	Time of onset Mo. Preg.	Type of Paralysis	Result, Mother	Result, Baby
1.	Wickman[26]	27		6	Landry's Ascending type of Paralysis	Died	Died, 6 mo.
2.	Shell[24]	26	2nd	7	Both lower extremities	Normal—term	Normal
3.	Hartman[9]	?	?	7	?	Normal—term	Normal
4.	Hartman	?	?	7	?	Normal—term	Normal
5.	Hartman	?	?	8	?	Normal—term	Normal
6.	Hartman	?	?	8	?	Normal—term	Normal
7.	Hartman	?	?	9	?	Normal—term	Normal
8.	Mueller[18]	?	?	4	?	Died (4th mo.)	Died—4 mo.
9.	Mueller	?	?	9	?	Normal—term	Normal
10.	Mueller	?	?	9	?	Normal—term	Normal
11.	Renault & Martingay[21]	23	3rd	5	Both lower extremities	Normal—term	Normal
12.	Zimmerman[27]	22	?	9	?	Normal—term	Normal
13.	Miller, N. F.[16]	26	3rd	3	Both lower extremities	Normal—term	Bilateral club feet
14.	Miller, N. F.	?	1st	5	Left lower extremity Bladder paralysis	Vaginal Cesarean (6th mo.)	Dead (no deformity)
15.	Ehrenfest[5]	18	1st	7	Right lower extremity	Normal—term	Normal
16.	Hornung & Creutzfeldt[10]	20	1st	8	Landry's Ascending type of Paralysis	Cesarean Section	Normal
17.	McGoogan[2]	24	1st	3	Right lower extremity	Normal—term	Normal
18.	McGoogan	32	2nd	3	Hip muscles and bilateral abdominal muscles	Normal—term	Normal
19.	McGoogan	24	1st	3	Both lower extremities & Right upper extremities	Normal—8th mo.	Premature died in 48 hrs. No. deformity
20.	Brahdy & Lenarsky[3]	22	1st	9	Both lower extremities	Forceps—term	Normal
21.	Brahdy and Lenarsky	23	1st	4	Right lower extremity	Normal—premature	Normal—premature
22.	Brahdy and Lenarsky	19	1st	2	Both lower extremities complete. Back and abdominal, partial	Therapeutic abortion (2 mo.)	Daed
23.	Guttmann[8]	23	?	8	Landry's Ascending type of paralysis	Died	Dead
24.	Pette[19]	?	?	3	Landry's Ascending type of Paralysis	Died	Dead
25.	Klein & Sittig[12]	25	?	9	Landry's Ascending type of Paralysis	Normal	Normal

TABLE I (Continued).

Case No.	Author	Age	No. of Preg.	Time of onset Mo. Preg.	Type of Paralysis	Result, Mother	Result, Baby
26.	Morrow & Lauria[17]	28	?	5	Both lower extremities Partial of both upper extremities	Forceps—term	Normal
27.	Ruhl[23]	27	?	8	?	Normal—term	Normal
28.	Spishakoff; Golenternek and Bower[25]	22	3rd	9	Landry's Ascending type of Paralysis	Normal—premature	Normal—premature
29.	Gillespie[9]	18	1st	7	Landry's Ascending type of Paralysis	Cesarean section	Died in 6 hrs. intracranial hemorrhage
30.	Case 1 (Mrs. K)	25	3rd	4	Partial paralysis of right 7th cranial nerve	Normal	Stillborn no deformity
31.	Case 2 (Mrs. M)	29	2nd	9	Both lower extremities Partial of left upper extremity	Forceps—term	Normal

According to Aycock,[2] the virus of poliomyelitis is widespread but the incidence of the disease in those exposed to the virus is limited and selective. He states, "that some of the selectives indicate that the determining factor, between clinical and subclinical poliomyelitis resides in the host. Familial tendency suggests that this factor is inherent; seasonal and geographic selectivities indicate a physiologic rather than an anatomic character; association with a certain constitutional type points to endocrine dysfunction and the suspected selectivity seen in the occurrence of poliomyelitis during pregnancy, in view of the implication of the nasal mucosa as the portal of entry of the virus, suggests that estrogenic substances are concerned."

Aycock[2] reported two sets of experiments. In the first series estrogens injected into castrate immature female monkeys increased their resistance to intranasal instillation of the poliomyelitis virus. In the second experiment the urines of patients ill with poliomyelitis and healthy individuals were assayed for estrogens. The results revealed a higher average excretion of estrogenic substance in the poliomyelitis group.

These results tend to confirm the statement made in 1931 by the *Journal of the American Medical Association*,[20] that some physiologic alteration may affect susceptibility to poliomyelitis. This factor may be a lowered reserve of estrogenic substances.

Time of Onset of Poliomyelitis by Trimesters

In Aycock's complete series, more cases had their onset in the last trimester than in either the first or second. His results were as follows: 17 per cent in the first trimester; 35 per cent in the second; 43 per cent in the third; and 5 per cent postpartum.

If only the thirty-one cases summarized in Table I are considered, the onset is more frequent in the last trimester and less in the second. The results are as follows: first trimester, 19 per cent; second trimester, 26 per cent; third trimester, 55 per cent. From these conclusions, it may be stated that poliomyelitis begins more frequently in the latter months of pregnancy.

Does Poliomyelitis Change the Usual Course of the Pregnancy?

We know that reproduction represents the highest physiologic changes in a woman and consequently calls for the greatest functional activity of practically all her organs. In the normal healthy, the satisfactory adjustment to the greatly increased functional demands is aided by the fact that all organs of the body are endowed with a physiologic reserve available

for emergency. Any additional burden may overtax the reserve capacity of any one or all of these organs.

In this series, the disease and the pregnancy independently followed their usual course. The disease has not produced spontaneous interruption of the pregnancy as is frequent with many acute infectious diseases. Neither has intrauterine death of the fetus occurred during the acute stage of the disease. I do think that the acute anterior poliomyelitis was not a factor in the stillborn fetus in my second case. In summary, it may be stated that poliomyelitis does not change its course adversely.

Does Pregnancy Change the Course of Poliomyelitis?

Greatly increased and enforced overactivity of normal organs may cause them to be overloaded if extra demands are made by intercurrent disease. This is particularly true in the advanced stages of pregnancy where the enlarged uterus exerts pressure against various abdominal viscera. Some of the possible effects are: reduced amplitude of respiratory movements of the diaphragm; interference with intestinal peristalsis; with the passage of urine from the kidney down, and interference with the circulatory system. That pregnancy did alter the course of the poliomyelitis was evident in several instances. In Miller's[16] second case, improvement was prompt following the interruption of the pregnancy. The patient had urinary bladder paralysis with a severe cystitis. The interference with the free passage of urine was evidently aggravated by the enlarged uterus. Bladder paralysis did occur in other cases, but was present for only short periods.

The other group of cases affected were those with Landry's type of ascending paralysis involving the diaphragm with upward extension. There were seven cases with this type of the disease; three of which died undelivered, two delivered normally and two had cesarean sections. The progressive embarrassment in breathing will be the determining factor in deciding whether a section should be done. This procedure is done primarily to aid the patient's lung aeration, and postpone the onset of a fatal respiratory paralysis rather than to stop the extension of the disease.

Spishakoff, Golenternek and Bower,[25] used a respirator in maintaining respiration before and during delivery. The result was good for both mother and baby. The mother's breathing improved immediately. According to the essayists, it was due to the increased freedom of diaphragmatic motion. The improvement continued so that by the eighth postpartum day, the patient was able to maintain normal respiration without the aid of the respirator. The other case delivered normally.

The two patients who had Cesarean sections, namely, Hornung's[10] and Gillespie's,[6] were done to prevent the progressive development of increasing respiratory embarrassment. Both mothers improved. The first baby was fine. The second died six hours after delivery due to intracranial hemorrhage which was confirmed by autopsy.

Does Poliomyelitis Change the Course of Labor?

Spontaneous labor in cases of decentralized uterus are reported in the literature from time to time. Good[7] has shown by experiments on guinea pigs that uterine musculature contracts well, and that no hemorrhage occurs in the third stage of labor when transection of the cord has destroyed a direct connection between the uterus and the central nervous system. Cohen[4] states that normally parturition may be considered as reflex act, the center of which is situated in the lumbar region of the spinal cord. He reported a case of a normal delivery with complete absence of pain, which had metastatic carcinoma of the spinal cord in the lower thoracic region.

The twenty-three patients who delivered normally all had spontaneous onset of labor and progressed normally through the third stage, incluring the puerperium. The difficulties which might be expected would be no different than those ordinarily encountered in obstetrics.

Does Poliomyelitis Affect the Fetus?

The presence of an intercurrent disease in the mother has progressively less effect on the fetus as pregnancy advances. In acute infectious diseases the newborn infant may show evidence of the transmitted disease in an active state such as syphilis or smallpox, or it may even exhibit the proof of recovery, from the transmitted disease as in smallpox. Kramer and Wright[14] reported the case of a pregnant woman who died of cerebral spinal epidemic meningitis be-

fore delivery. Autopsy showed the same disease to be present in the fetus. An acute anterior poliomyelitis is an acute infectious disease, the possibility of affecting the fetus readily becomes apparent. However, if the virus of poliomyelitis does not enter the blood stream as is generally considered to be correct, it is reasonable that the fetus could not be infected in utero.

If the complete series, including the cases from the personal records of Aycock's[1] are considered, only three cases suggest the possibility of intrauterine poliomyelitis. Miller[16] believes the bilateral club foot was not the result of intrauterine poliomyelitis, but rather a congenital deformity. In the other two cases, the data available is insufficient to confirm or refute the possibility of intrauterine infection.

Severin[23] in 1939 reviewed the literature on acute anterior poliomyelitis in the first month of life and found only twenty-two cases, and reported one of his own. He concluded that the possibility of intrauterine infection is not proven convincingly in one single instance. His conclusion confirms the finding in the present study that intrauterine poliomyelitis does not occur.

Summary and Conclusions

1. Pregnancy and acute anterior poliomyelitis are probably associated more frequently than is reported in the literature.

2. A physiologic alteration in the reserve of estrogenic substances in the body may be a factor in the susceptibility to poliomyelitis.

3. Poliomyelitis associated with pregnancy has its onset more often in the latter months or gestation.

4. Poliomyelitis does not change the usual course of pregnancy.

5. The type of paralysis and complications will determine whether interference with the pregnancy is necessary.

6. Labor should be no different than that ordinarily encountered in obstetrics.

7. It has not been proven that intrauterine poliomyelitis occurs.

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VITAMINS DON'T STOP COLDS

Taking vitamin pills will not reduce the number of colds nor the severity nor duration of colds in persons on a reasonably adequate diet, it appears from experiments reported by Dr. Donald W. Cowan, Dr. Harold S. Diehl and Dr. A. B. Baker, of the University of Minnesota Students' Health Service (*Journal, American Medical Association,* Dec. 19).

Their experiments were made in two successive winters under carefully controlled conditions with several hundred University of Minnesota students who were especially susceptible to colds. The effects of large doses of vitamin C alone (the citrus fruit vitamin that prevents scurvy) and of large doses of vitamins A, B_1, B_2, C and D were tested. *Science News Letter,* December 26, 1942.

Achlorhydria and Gastro-Intestinal Disturbances

The Value of Substitution Therapy*

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■ During the past year, I have had the opportunity of observing seven patients with presenting complaints referable to gastro-intestinal disturbances, in whom gastric analysis revealed an achlorhydria. The gastro-intestinal complaints in each of these cases subsided promptly with the exhibition of dilute hydrochloric acid. Most of these patients had spent several years seeking relief by the use of alkaline powders or patent medicines, either on their own initiative or on the advice of physicians, and the patients were all exceedingly grateful for the prompt relief afforded them by the dilute hydrochloric acid. The treatment is simple, is known to every physician, but is too infrequently used.

This experience emphasized to me the value of routine gastric analysis in the investigation and evaluation of gastro-intestinal disorders. The universal availability of the roentgenological examination of the gastro-intestinal tract perhaps has tended to render less obvious the diagnostic leads obtainable by gastric analysis.

The literature on achlorhydria is extensive, but a comprehensive review was published by Oliver and Wilkinson in 1933,[1] and a briefer review by Winkelstein appeared this year.[2] Winkelstein found a 1.2 per cent incidence of true achlorhydria (i.e., achlorhydria unassociated with organic disease) in 5,585 consecutive test meals at the New York Mount Sinai Hospital. This incidence is much lower than the usually quoted figures, but it is probably the most correct figure available because of the exacting criteria of Winkelstein's method.

Etiology

The list of diseases in which achlorhydria has been reported is impressive: carcinoma of the stomach, pernicious anemia, chronic gastritis, hyperthyroidism, gall-bladder disease, hepatic cirrhosis, subacute yellow atrophy of the liver, gastric ulcer, appendicitis, mucous colitis, ulcerative colitis, malignancy of the bowel, subacute combined sclerosis, microcytic hypochromic anemia of women, sprue, pellagra, chronic pancreatitis, pancreatic carcinoma, diabetes mellitus, rheumatoid arthritis, allergies, psoriasis and any protracted febrile state such as tuberculosis or malaria. However, the most important diseases to search for when achlorhydria is found are gastric carcinoma, pernicious anemia, and chronic gastritis, since it is in these three diseases that the percentage incidence of achlorhydria is greatest. Therefore, it is apparent that any patient in whom achlorhydria is found deserves detailed investigation of the blood and careful x-ray examination of the gastro-intestinal tract.

In achlorhydria not associated with the diseases listed, there may be no symptoms whatsoever, or there may be a great number and variety of indefinitive gastro-intestinal complaints such as flatulence, epigastric pain, nausea, vomiting, heartburn, constipation or diarrhea, anorexia, soreness of the tongue. There may be a very close similarity to the symptoms characteristic of a duodenal ulcer. X-ray examination in uncomplicated achlorhydria generally reveals gastric hypermotility and rapid emptying. The stools may contain undigested meat fibres because of the hypermotility of the digestive tract. The gastro-intestinal difficulties may lead to general malaise, ready fatiguability, insomnia, weight loss, depression, malnutrition, and vitamin deficiency. These variegated complaints are too often misinterpreted as due to an anxiety neurosis, or to "functional indigestion," or to neurasthenia, or some other wastebasket diagnostic category.

It is apparent, then, that achlorhydria is by no means an insignificant incidental finding, because (a) it may be a manifestation of a serious underlying disease or (b) it may be responsible for a disabling array of gastro-intestinal disturbances.

Diagnosis

The diagnosis of achlorhydria is relatively simple. Free hydrochloric acid is considered absent if the gastric contents fail to turn Toepfer's reagent red. The color change of Toepfer's

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reagent occurs below a pH of 3.5, and free hydrochloric acid is assumed to be responsible for acidity below a pH of 3 to 3.5. For purposes of expediency, we have shortened the usual fractional gastric analysis thus:

1. The fasting contents are aspirated.

2. The alcohol test meal is administered, and samples of gastric contents are taken at one-half hour and one hour after the administration.

3. A few drops of Toepfer's reagent are added to the fasting specimen and to the one-half hour specimen immediately after they are aspirated. If the red color does not appear, 0.6-1.0 mgm. of histamine hydrochloride is injected subcutaneously immediately after the second specimen is aspirated, and the one hour specimen is taken at the usual time. Titrations are then carried out in the laboratory. If free hydrochloric acid is absent from all three specimens, we consider that the patient has achlorhydria. Winkelstein's criteria for the diagnosis of achlorhydria are somewhat stricter. He uses oatmeal gruel as the test meal, takes more samples over a longer period of time, and has found that the failure of excretion of parenterally injected neutral red by the gastric mucosa is a slightly more accurate gauge of achlorhydria than is the stimulating effect of histamine on the gastric glands. However, for most practical purposes, the abbreviated method described has been found satisfactory.

The pertinent clinical features of the patients we studied are summarized below:

Case Reports

Case 1.—V. D., forty-five-year-old painter, complained of dull aching right upper quadrant pain of five years' duration.
Gastric analysis: Achlorhydria
Gall-bladder series: Negative
Gastro-intestinal series: Normal except for ptosis of transverse colon.
Blood count and volume index: Normal.
Result of treatment with dilute hydrochloric acid: Complete relief.

Case 2.—W. S., Fifty-eight-year-old farmer with a ten-year history of intermittent post-prandial epigastric distress, associated with frequent nausea and vomiting, weight loss, intolerance to many foods, constipation and occasional episodes of diarrhea.
Gastric analysis: Achlorhydria.
Gastro-intestinal series: Negative except for ptosis of transverse colon.
Blood count and volume index: Normal.
Result of treatment with dilute hydrochloric acid: Complete relief.

Case 3.—H. N., fifty-nine-year-old seaman with an eight-year history of post-prandial epigastric pain, associated with nausea and occasional vomiting.
Gastric analysis: Achlorhydria.
Gastro-intestinal series: Negative.
Gastroscopy: Slight patchy atrophy of the gastric mucosa.
Blood count: Normal.
Result of treatment with dilute hydrochloric acid: Complete relief.

Case 4.—W. W., forty-year-old seaman with two-year history of post-prandial epigastric burning distress.
Gastric analysis. Achlorhydria.
Gastro-intestinal series: Coarse gastric mucosal folds.
Red blood count: 4,300,000 with 88 per cent hemoglobin.
Volume index: 1.02.
Corrected cell volume: 45.1 mm.
Result of treatment with dilute hydrochloric acid: Complete relief..

Case 5.—F. K., forty-eight-year-old handyman with three-year history of generalized abdominal cramp-like distress, sensation of fulness, and occasional nausea and vomiting.
Gastric analysis: Achlorhydria.
Gastro-intestinal series: Negative except for hypermotility.
Red blood count: 4,700,000 with 88 per cent hemoglobin.
Volume index: 1.31.
Corrected cell volume: 47.3 mm.
Sternal puncture: Indeterminate.
Result of treatment with dilute hydrochloric acid: Complete relief.

Case 6.—L. H., forty-six-year-old seaman with history of post-prandial distention, nausea and regurgitation, associated with constipation; duration, two years.
Gastric analysis: Achlorhydria.
Gastro-intestinal series: Negative.
Blood count: Normal.
Result of treatment with dilute hydrochloric acid: Complete relief.

Case 7.—P. C., fifty-year-old seaman with history of morning nausea, anorexia, and epigastric pain of "several years'" duration and chronic alcoholism.
Gastric analysis: Achlorhydria.
Gastro-intestinal series: Negative.
Blood count: Normal.
Result of treatment with dilute hydrochloric acid: Complete relief.

Discussion

It will be noted that, in all these patients, the blood and gastro-intestinal tracts were checked. Patients one and two exhibited a ptosis of the transverse colon which was compatible with their constitutional habitus. Patient three exhibited gastroscopic findings suggestive of an atrophic gastritis. Patient four showed a coarse gastric mucosal pattern on x-ray, compatible with a diag-

nosis of chronic gastritis. Patient five exhibited a volume index higher than normal, but there were no clinical or other laboratory evidences of pernicious anemia. The gastro-intestinal complaints of every one of these patients disappeared very dramatically within twenty-four to forty-eight hours after dilute hydrochloric acid was prescribed. One to three c.c. of dilute hydrochloric acid (U.S.P.) diluted in one-half glass of water was taken through a straw (to protect the teeth) at the beginning of each meal. There was no instance of intolerance to the administration of the dilute hydrochloric acid.

During the same period, we observed six other patients in whom achlorhydria was found; two with pernicious anemia, two with multiple sclerosis; one with diffuse meningo-vascular neurosyphilis and an aortic aneurysm, and one with chronic alcoholism and chronic gastritis (as determined by gastric mucosal pattern on roentgenological examination). Of these six patients, five had no gastro-intestinal difficulties. One, the patient with chronic gastritis, was a forty-five-year-old seaman who complained of abdominal pain, anorexia, and flatulence for several days following alcoholic debauches. His complaints subsided with a soft diet, and did not require dilute hydrochloric acid.

Questions to Be Answered

Study of these cases suggested several questions:

1. *Why do some patients with achlorhydria complain of gastro-intestinal disturbances, while others are asymptomatic, and how can we account for the symptom-free periods of weeks or months in patients with definite achlorhydria but with only intermittent episodes of distress?*

The answer is obscure. We know that achlorhydria due to a protracted fever may disappear when the fever subsides, and we know that, rarely, the achlorhydria of pernicious anemia (and achlorhydria is a *sine qua non* in the diagnosis of pernicious anemia) will disappear when the anemia is controlled with liver extract. However, patients may have achlorhydria for years with no complaints, or may develop gastro-intestinal disturbances at any time. The "trigger mechanism" is not clear. Occasionally, an alcoholic debauche may excite symptoms in a patient with achlorhydria, as in the one we described, but there is no necessity here to blame the achlorhydria for the disturbances.

2. *What is the relation between achlorhydria and gastritis?*

It is the opinion of most students that chronic gastritis is one of the chief causes of achlorhydria. Oliver and Wilkinson classify the etiology of achlorhydria thus:

(1) Familial, due to a constitutional abnormality.

(2) Due to chronic gastritis from direct irritation or from hematogenous intoxication.

(3) Neurogenic origin.

It will be noted that patients three and four of our series exhibited gastroscopic or roentgenological evidence of chronic gastritis. We did not do gastroscopies on all our patients, but Winkelstein reported the results of gastroscopic examination of fourteen patients with true achlorhydria of undertermined etiology, and found that all presented evidence of severe gastritis. However, such evidence, although suggestive, does not conclusively prove that the achlorhydria is a result of the gastritis. It is even conceivable that the achlorhydria may be a significant factor in the development of the gastritis.

3. *What is the likelihood that a patient with achlorhydria will develop a pernicious anemia or carcinoma of the stomach?*

Again the answer is not known. Achlorhydria may precede pernicious anemia by many years, but there is no method of determining whether an individual with achlorhydria will or will not develop pernicious anemia. Patient five in our series had a high volume index, but whether or not he is in the early phases of a pernicious anemia cannot be answered at present.

The relationship between achlorhydria and gastric carcinoma is also obscure. The incidence of achlorhydria in gastric carcinoma has been reported to be between 50 and 90 pr cent by various observers. Yet, carcinoma of the stomach is much more common in males than in females; and, by and large, more females than males have achlorhydria.

4. *How does the dilute hydrochloric acid act?*

Hydrochloric acid acts in the stomach in two ways: (1) It furnishes the acid medium necessary for the conversion of pepsinogen to the ac-

tive enzyme, pepsin. The pepsin can then exert its proteolytic action. (2) It acts as a bacteriocidal agent. It is clear that the dilute hydrochloric acid is merely substitution therapy; there is no known way of stimulating the secretion of hydrochloric acid by the gastric mucosa in people with proven achlorhydria. However, the simple measure of adding dilute hydrochloric acid to the meals of patients with gastro-intestinal disturbances secondary to achlorhydria serves to alleviate the distress. Dilute hydrochloric acid is generally of no value in pernicious anemia, unless there are gastro-intestinal symptoms secondary to the achlorhydria. In a very occasional patient with pernicious anemia receiving liver therapy, the hemoglobin regeneration will lag behind the red cell count, and supplementary iron therapy may be indicated. In such cases, it might be wise to administer dilute hydrochloric acid, since the iron is apparently absorbed more readily from an acid medium.

Summary

Seven patients with gastro-intestinal disturbances due to achlorhydria are described.

In each patient, the administration of dilute hydrochloric acid resulted in prompt subsidence of the complaints.

The problem of achlorhydria is briefly discussed.

References

1. Oliver, T. H., and Wilkinson, J. F.: Achlorhydria. Quart. Jour. Med., New Series 2:431, 1933.
2. Winkelstein, A.: The diagnosis, incidence, and significance of essential achlorhydria. Am. Jour. Med. Sci., 2:419, (March) 1942.

MSMS

Tuberculosis lies in wait particularly for the young adult, whose services today and after the war must be of supreme value to the nation. Tuberculosis always increases in wartime, and measures must be taken now if the increase that we may expect in the near future is to be stemmed. Existing tuberculosis services deal with those who have symptoms of disease, or who feel ill. A new advance is now needed. This means finding cases in whom the disease has started, but not yet caused the patient to feel ill. Often nothing may be necessary other than careful watching; in some, short treatment is required, but in all cases there is better hope of eradicating the disease.—From *Bull. of Nat'l Assn. Prev. of Tuber.*, Eng., Jan. 11, 1942.

Blindness in Michigan

A Survey

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■ ENROLLMENT of the blind who are eligible for assistance under the Aid to the Blind provision of the Social Security Act has been proceeding during the last three years in most of the states, and a mass of statistical data has been assembled. While the collected data leave wide lacunæ still unfilled and, furthermore, doubtless contain numerous inaccuracies, they should nevertheless, when brought together and thoroughly studied, provide us with a fuller and more trustworthy picture of blindness in this country than any we have previously had.

The educational possibilities of this material ought not to be neglected. They should be used for enlightening the public as to the causes of blindness and the means by which many of these may be effectively combated, for quickening the interest of the general medical profession in the medical aspects of blindness, and for advancing scientific knowledge of the importance and relations of the various factors that may be concerned in sight destruction. The fact that at present the data afforded may be incomplete and in certain respects unsatisfactory, ought not to deter us, for if the ophthalmological profession now throws itself with some ardor into this study, we may confidently expect that the certifying physicians' reports will, as a natural consequence, become more complete and specific as times goes on.

It is with these thoughts in mind that I have analyzed the mass of detailed information which was very kindly placed at my disposal by the Michigan State Bureau of Social Security, under whose authority applicants for Aid to the Blind in this state are examined. I have recognized that the material is perhaps too small to sustain, by itself alone, the close analysis to which I

have subjected it, but have felt that if similar studies were made in all of the states—a few such are already at hand—the composite of the results would be of great value.

TABLE I

Age	Cases
17— 19	8
20— 29	89
30— 39	251
40— 49	300
50— 59	422
60— 69	557
70— 79	184
80— 89	57
90— 99	7
100—104	4
Age unknown	252
Total	2,131

The figures here presented are as of March 1, 1941. A total of 2,131 blind persons are included. Excluded are (1) all blind children and young persons under seventeen years of age, who are cared for at the State School for the Blind, (2) blind residents in other public or private institutions, (3) persons whose impaired vision is a secondary consideration and who receive a pecuniary grant from the Old Age Assistance Bureau, (4) blind persons who are not in need of pecuniary aid, (5) all persons with vision better than 20/200 in the better eye.

Race, Sex and Age

Of the 2,131 blind persons certified to receive aid, 1,882 were white, 236 Negro and nine Indian, the race of four is not disclosed. Of the total 1,553 were males, 576 were females, and in four cases the sex is not stated. The age distribution is shown in Table I.

The striking feature of this table is the rapid increase of blindness decade by decade up to the age of seventy years and the precipitous fall after this age. Recent Canadian statistics on the blind[1] fail to show this fall. The explanation probably lies in the large number of persons of unknown age in our Michigan total, 252 as compared with twelve in the larger Canadian total. Persons who do not know their age are usually in advanced years. If these 252 persons of unknown age were distributed over the latter age groups, they would greatly modify the picture. This is an instance of the distortion which is liable to affect all tables where any considerable portion of the total must be classified as "unknown," "undetermined," or "not specified." In studying the etiologic analyses of the Michigan material it is constantly necessary to keep in mind the possibility of such distortion.

It is regrettable that there are no figures in our material showing the age at which blindness occurred.

Etiology

The classifications recommended by the Committee on Statistics of the Blind have been followed in the analysis of the Michigan material. These classifications show (1) the basic disease or traumatic or chemical injury, (2) the ocular structure concerned, and (3) the nature of the damage to this structure which was the direct cause of the loss of vision.

In Table II the total material is shown classified in two of these ways; that is, (1) according to the basic etiology and (2) topographically, according to the ocular structure concerned.

In order of frequency we have infectious diseases with 494 cases or 23.18 per cent of the total and traumatic and chemical injuries in second place with 333 cases or 15.62 per cent of the total; congenital and hereditary origin (excluding syphilitic) in third place with 252 cases or 11.82 per cent, followed by noninfectious systemic diseases in fourth place with eighty-three cases or 3.89 per cent. Here it will be noted that infectious diseases were nearly six times as dangerous to sight as noninfectious systemic diseases. Neoplasms stand in fifth place with thirty-three cases or 1.55 per cent, and toxic poisoning (excluding industrial) in last place with only nine cases, or 0.41 per cent of the series. There remain 927 cases or 43.50 per cent of the total, with etiology undetermined, unknown to science or not specified.

Of the 333 persons blinded by traumatic or chemical injury, 204 or 61.2 per cent received the injury outside of industry and 129 or 38.8 per cent in industry. In sixteen cases it is not recorded where the injury was received. Thirty-

five of the injuries resulting in blindness were received in play or sport and forty were incidental to surgical procedures. Only nine cases are blamed on street or traffic accidents. It is probably much greater than the recorded data indicates.

Of the 252 cases of blindness of congenital or hereditary origin (excluding syphilitic), 162

TABLE II

Etiological (All Causes) / Topographical (All Causes)		Per Cent	Eyeball	Conjunctiva	Cornea	Iris and Ciliary Body	Crystalline Lens	Choroid and Retina	Optic Nerve	Vitreous Humor	Miscellaneous and Ill-defined
			26.84	.33	10.09	3.52	18.30	10.98	19.99	.84	9.10
Infectious Diseases	494	23.18	18	6	166	61	11	78	140	3	11
Traumatic and Chemical Injuries	333	15.62	201		13	2	17	46	41	2	11
Toxic Poisoning (Exclud. Industrial)	9	0.41	1	1		1			5	1	
Neoplasms (All types)	33	1.55			1				30	1	1
Noninfectious Systemic Diseases	83	3.89	3		4	2	17	23	32	1	1
Congenital and Hereditary Orig. (Exclud. syphilitic)	252	11.82	68		8	1	77	66	18	3	11
Etiology Undetermined, unknown or not specified	927	43.50	281		23	8	268	21	160	7	159
Total	2131		572	7	215	75	390	234	426	18	194

seems worthy of note that industrial diseases (including poisoning) led to loss of vision in only five persons.

Table III presents a break-down of the infectious diseases producing blindness.

In this series the three infectious diseases producing the greatest amount of blindness are syphilis, with 146 cases or 29.4 per cent of all blindness due to infectious diseases, ophthalmia neonatorum, with 100 cases or 20.0 per cent of such blindness. The percentages for opththalmia neonatorum and for trachoma may be taken as measurements of the danger from these diseases as it existed a certain number of years ago and not as it exists at present. The youngest person blind from trachoma in this series was forty years old and the remaining persons blind from this disease were all older than fifty-five. For syphilis the situation is different. We know that this disease has not been brought under control and there is evidence that blindness from optic atrophy, the incidence of which is to some degree an index of the amount of syphilitic blindness, is increasing. Furthermore, the actual amount of blindness due to syphilis in this series

TABLE III. INFECTIOUS DISEASES PRODUCING BLINDNESS

Cause	Cases	Per Cent of Group	Per Cent of Series
All Infectious Diseases	494	100.0	23.18
Diptheria	1	.2	.05
Gonorrhea (exclud. O.N.)	2	.4	.10
Measles	12	2.4	.56
Meningitis	39	7.8	1.80
Ophthalmia Neonatorum	100	20.0	4.69
Scarlet Fever	24	4.8	1.12
Septicemia	1	.2	.05
Smallpox	7	1.4	.35
Syphilis	146	29.4	6.85
Trachoma	7	1.4	.35
Tuberculosis	8	1.6	.38
Typhoid Fever	4	.8	.20
Infantile Paralysis	6	1.2	.30
Other infections, specified	11	2.2	.49
Infections, not specified	126	25.2	5.91

are listed as of congenital origin with cause not determined and eighty as of hereditary origin. No cases are assigned to consanguinity. In ten cases it is not specified whether the origin is regarded as congenital, hereditary or consanguineous.

TABLE IV. OCULAR CAUSES OF BLINDNESS IN TEN OR MORE CASES

Ocular Lesion or Disorder	Cases	Per Cent of Series
Optic Atrophy	396	18.58
Cataract	386	18.11
Glaucoma	236	11.07
Other Degenerative Changes in Eyeball	204	9.57
Retinal Degeneration (Including Pigmentosa)	52	2.44
Iritis	51	2.39
Errors of Refraction	50	2.34
Chorioretinitis	43	2.01
Keratitis (All types)	34	1.59
Detached Retina	32	1.50
Sympathetic Ophthalmitis	30	1.47
Developmental Anomalies	29	1.36
Choroiditis	26	1.22
Retinitis	20	.94
Iridocyclitis	19	.89

Diabetes and vascular diseases account for twenty-eight and twenty-one cases, respectively, of the eighty-three cases of blindness attributed to noninfectious systemic diseases. Diseases of the kidney are blamed for sixteen cases, and diseases of pregnancy and childbirth for another four. Ten cases are attributed noninfectious diseases of the central nervous system. Other systemic diseases, listed as "specified" or "not specified," account for four cases.

There is no information as to the nature of the neoplasms which led to destruction of sight in thirty-three cases and the poison or poisons which caused blindness in the nine cases of non-industrial toxic poisonings are not among those listed.

Finally, the large group of 927 or 43.5 per cent of cases with etiology undetermined or not specified is subdivided into three groups: (1) One comprising recognizable disease entities, the etiology of which is unknown to science (such as primary glaucoma and senile cataract); (2) Cases of which the examining physician states that he was not able to determine the etiology; and (3) Cases in which the physician made no notation as to etiology.

Referring again to Table II and examining the topographical distribution of our 2,131 cases, we find that the lesion producing blindness concerns the eyeball in 572 cases, or 26.84 per cent, the crystalline lens in 390 cases or 18.30 per cent, the optic nerve in 426 cases or 19.99 per cent, the choroid and retina in 234 cases or 10.98 per cent, the cornea in 215 cases or 10.09 per cent, the iris and ciliary body in seventy-five cases or 3.52 per cent, the vitreous humor in eighteen cases or 0.84 per cent and the conjunctiva in seven cases or 0.33 per cent. In this classification blindness originating in an affection of the conjunctiva but caused proximately by a complication or sequela in another structure of the eye is credited to the latter structure. The 194 cases, or 9.10 per cent, are listed topographically as miscellaneous or ill-defined.

Table IV presents a listing, in order of frequency, of the ocular lesions and disorders which were found to be the direct cause of blindness in ten or more cases of the series.

It may be of sufficient interest to mention further that in only eleven cases was interstitial keratitis given as a cause of blindness, and that twenty-two cases were due to motor anomalies, eight cases of amblyopia ex anopsia dependent on strabismus.

The amount of blindness ascribed to errors of refraction in this series is surprising and even puzzling, especially since in forty-four cases is myopia specified. It is not duplicated in other series which the author has seen. It must, of course, be understood that the present writer has accepted the data as presented to him and is dealing with them only as analyzer and commentator. He is in no position to go behind these data and explore their bases, or to examine them critically.

In this series the two leading ocular causes of blindness developing from infectious diseases are lesions of the cornea (33 per cent) and atrophy of the optic nerve (28 per cent). In loss of vision from noninfectious systemic diseases,

lesions of the optic nerve hold first place with 38 per cent, and lesions of the choroid and retina come second with 28 per cent.

Lesions of the crystalline lens, chiefly cataract, were the cause of blindness in 30 per cent, lesions of the eyeball in 27 per cent and of choroid and retina in 26 per cent of all blindness of congenital and hereditary origin.

It appears worthy of notice that in each of these three etiologic classifications, nearly 60 per cent of the blindness was produced by only two types of lesions.

Table V shows the ocular lesions which were the immediate cause of the destruction of vision in the most important etiologic disease, considered severally:

TABLE V. OCULAR LESIONS THROUGH WHICH BLINDNESS WAS CAUSED BY DISEASE

	Cases
Syphilis	
Optic atrophy	79
Iritis	11
Corneal ulcers	12
Keratitis, not specified	9
Cataract	6
Iridocyclitis (uveitis)	5
Interstitial keratitis	5
Choroiditis	3
Chorioretinitis	3
Degenerative changes (eyeball)	3
Motor anomalies	2
Optic neuritis	1
Other affection of optic nerve, specified	1
Detached retina	1
Refractive errors	1
Affection of cornea, not specified	1
Lesions, not specified	3
Total	146
Ophthalmia Neonatorum	
Ulcerative keratitis	99
Other affection of eyeball, specified	1
Total	100
Meningitis	
Affection of conjunctiva, not specified	1
Optic atrophy	34
Chorioretinitis	1
Affection of iris, specified	1
Disorganized, atrophic, phthisic eyeball	1
Lesion, not specified	1
Total	39
Diabetes	
Cataract	13
Retinitis	11
Chorioretinitis	2
Optic atrophy	1
Affection of cornea, not specified	1
Total	28
Scarlet Fever	
Iritis	6
Affection of cornea, specified	6
Optic atrophy	4
Detached retina	2
Chorioretinitis	1
Panophthalmitis	1
Disorganized globe	1
Other degenerative changes (eyeball)	1
Retinitis	1
Lesion, not specified	1
Total	24
Vascular Diseases	
Optic atrophy	16
Cataract	3
Cornea, not specified	1
Intraocular hemorrhage	1
Total	21
Measles	
Ulcerative keratitis	3
Iritis	2
Retinitis	2
Affection of cornea, specified	2
Optic atrophy	1
Degenerative changes (eyeball)	1
Conjunctivitis	1
Total	12
Nephritis and Other Kidney Diseases	
Corneal ulcer	1
Retinitis	6
Optic atrophy	4
Disseminated chorioretinitis	2
Iridocyclitis	1
Cataract	1
Retinal hemorrhage	1
Total	16
Trachoma	
Ulcerative keratitis	3
Pannus	1
Iritis	1
Intraocular hemorrhage	1
Cataract	1
Total	7
Tuberculosis	
Uveitis	2
Iritis	1
Retinitis	1
Chorioretinitis	1
Other affection of choroid and retina	1
Optic atrophy	1
Lesion, not specified	1
Total	8
Infantile Paralysis	
Optic atrophy	4
Affection of optic nerve, not specified	1
Intraocular hemorrhage	1
Total	6
Typhoid Fever	
Choroiditis	2
Iritis	1
Disorganized globe	1
Total	4

TABLE V.—CONTINUED

	Cases
Smallpox	
Keratitis, not specified	4
Iritis	1
Cataract	1
Affection of cornea, not specified	1
Total	7
Diphtheria	
Lesion, not specified	1
Gonorrhea	
Iritis	2
Septicemia	
Optic atrophy	1
Diseases of Pregnancy and Childbirth	
Iritis	1
Optic atrophy	2
Optic neuritis	1
Total	4
Noninfectious Diseases of Central Nervous System	
Motor anomaly, specified	1
Affection of cornea, specified	1
Retinitis pigmentosa	1
Optic atrophy	5
Affection of optic nerve, not specified	1
Lesion, not specified	1
Total	10
Other Noninfectious Systemic Diseases	
Panophthalmitis	2
Optic atrophy	2
Total	4

In 927 cases, in which the etiology is stated to be unknown to science, undetermined by the certifying physician and the etiology not specified, the leading occurring sight-destroying ocular lesions were:

	No. Cases
Cataract	267
Glaucoma	236
Optic atrophy	154
Myopia	32
Lesions of cornea, various	23
Lesions of choroid and retina, various	21

Various others in lesser numbers.

In the foregoing we have investigated statistically the relation of etiology to ocular lesion from the standpoint of the etiology. It remains to consider the same relation from the standpoint of the ocular lesion. A few of the important lesions must suffice.

Cataract (386 cases) is ascribed to traumatic and chemical injuries in fourteen cases or 3.63 per cent of all cases of cataract; congenital origin in seventy-seven cases or 19.9 per cent; diabetes in thirteen cases or 3.33 per cent; vascular diseases, other systemic diseases, hereditary origin, diphtheria, trachoma, and neoplasm in from three to one cases each; its cause is given as unknown to science, undetermined by physician, and not specified in 267 cases or 69.1 per cent.

Optic atrophy (396 cases) is ascribed to syphilis in seventy-nine cases or 19.9 per cent; traumatic and chemical injuries in thirty-five cases or 8.84 per cent; meningitis in thirty-four cases or 8.58 per cent; neoplasms in twenty-nine cases or 7.32 per cent; vascular diseases in sixteen cases or 4.04 per cent; congenital origin in seven cases or 1.76 per cent; other infectious diseases, specified; infectious diseases, not specified; measles; scarlet fever septicemia; tuberculosis; infantile paralysis; toxic poisonings; diabetic; nephritis, noninfectious diseases of central nervous system; diseases of pregnancy and childbirth; other systemic diseases; and hereditary origin in from six to one cases each; its cause is given as unknown to science, undetermined by physician, and not specified in 154 cases or 38.8 per cent.

Glaucoma in all of the 236 cases is ascribed to as unknown to science, undetermined by physician and not specified.

Refractive errors (fifty cases) are ascribed to congenital and hereditary origin in fifteen cases; syphilis, nonindustrial injury and industrial injury, one case each; and in thirty-two cases the cause is given as unknown to science, undetermined by physician and not specified.

In the case of cataract and of optic atrophy, it is enlightening to carry examination of the figures one step further. Of the 386 cases of cataract, in only 119 cases was the etiology ascertained, or 30.8 per cent. Of this group with known etiology, roughly 12 per cent is accounted for by mechanical and chemical trauma, and 65 per cent by congenital origin, and 11 per cent by diabetes. These percentages show more clearly the importance of these factors in causation of nonsenile cataract than do percentages based on a total which includes the large senile group and the cases of undetermined or unspecified etiology. Of the 396 cases of optic atrophy, 242 are assigned an etiology. Of these 242, syphilis definitely is accountable for almost 33 per cent, trauma and chemical injury for 14 per cent and neoplasms for 12 per cent.

Meanwhile the State Bureau of Social Security

is to be praised for its excellent work in bringing to the people, the medical profession, and especially the ophthalmologic branch of that profession, in the state, a mass of detailed information, heretofore wholly lacking, on the problem of blindness in Michigan. I am myself witness to the unfailing courtesy and spirit of helpfulness of the Commission, who, with great kindness, have promptly put at my disposal for the purposes of this study all of the pertinent data in their possession, and I take this opportunity to thank them.

Surveys of Blindness in Five Other States

For comparison with the Michigan data, reports of surveys of blindness are at hand from Missouri (5,927 adults),[2] Indiana (2,551 adults),[3] New Jersey (2,131 persons),[4] Pennsylvania (18,193 blind eyes),[5] and Louisiana (700 persons between the ages of sixteen and sixty-four —interim report).[6]

Trauma, congenital origin and syphilis, which, in this order, are the leading causes of blindness in the Michigan series, appear also leaders in New Jersey and Louisiana, but in varying order of frequency in Louisiana: syphilis, trauma, congenital origin. In Missouri and Indiana trachoma is the chief cause of blindness. In the two largest cities of Missouri, St. Louis and Kansas City, optic atrophy is responsible for 23 per cent of all blindness and as this lesion is syphilitic in a high percentage of cases, syphilis may with great probability be assumed to be the chief cause of blindness in these cities. In Indiana trauma and syphilis occupy second and third places, respectively, after trachoma. In the Pennsylvania statistics the basic etiology is not systematically given.

The three ocular lesions immediately responsible for the greatest amount of blindness in the six states under consideration are shown in Table VI, arranged in decreasing order of frequency.

TABLE VI. LEADING CAUSES OF BLINDNESS IN SIX STATES
(Ocular Lesions)

Michigan	Missouri	Indiana	New Jersey	Pennsylvania	Louisiana
Optic atrophy	Cataract	Cataract	Optic atrophy	Cataract	Optic atrophy
Cataract	Optic atrophy	Corneal ulcers and pannus	Cataract	Uveitis	Cataract
Developmental Anomalies and degenerative changes	Corneal ulcers	Optic atrophy	Glaucoma	Glaucoma	Iridocyclitis (Uveitis)

Blindness in the United States

Full and accurate information on blindness in the United States is lacking. The General Census of 1930 reports 63,489 blind persons, fifty-two per 100,000 of the population. There is reason to believe that the actual number is far greater, possibly eighty or ninety blind persons per 100,000.

A special report on the blind was published by the Bureau of the Census in 1920 and has been analyzed by Best.[7] In this report, the leading cause of blindness in the United States is given as accident or other injury, including sympathetic ophthalmitis. Sixteen and five-tenths per cent of all blindness is held due to this cause. This figure may be compared with 15.6 per cent in the Michigan series. Infectious diseases are blamed for approximately 13 per cent of all blindness, which is under the Michigan figure of 23.18 per cent. Congenital origin with cause not stated is credited with 7.4 per cent of blindness; in the Michigan series, with 11.82 per cent. The three ocular lesions responsible for the greatest amount of blindness are given as cataract (13.7 per cent), glaucoma (5.4 per cent), and optic atrophy (4.9 per cent). These figures are all three far below those of the Michigan series, which are: Optic atrophy, 18.58 per cent; cataract, 18.11 per cent; and glaucoma, 11.07 per cent.

The recent National Health Survey,[8] made by the United States Public Health Service, coöperating with the Works Progress Administration, used the sampling method in its investigation of blindness in the nation. In eighty-three cities with a total population of 5,502,391, the enumer-

ators found 2,053 blind persons. In this survey a serious effort was made to obtain from the family physician verification or correction of the etiologic diagnosis supplied by the blind individual or his family. The data on this point ought, therefore, to be more reliable than similar data in the Census returns. Accidents are held accountable for 20.6 per cent of blindness; congenital origin, for 7.3 per cent. Cataract is named as "the most frequent single cause" of blindness; it was found in 19.3 per cent. The classifications used by the National Health Survey differ from those of the Committee on Statistics of the Blind and it is henceforward impossible to make comparisons. Disease of all kinds is held responsible for 72 per cent of all blindness found; disease of the eye, other than cataract, for 11.9 per cent; general infectious and parasitic diseases for 5.6 per cent; chronic diseases for 5 per cent; cerebral hemorrhage for 3.7 per cent; senility for 8.2 per cent, and unknown disease for 14.8 per cent.

An analysis of 2,702 children in twenty schools for the blind was recently made by the Committee on Statistics of the Blind.[9] A congenital or hereditary origin is ascribed to 51 per cent, and infectious origin to 28.6 per cent, a traumatic or chemical origin to 7.8 per cent of cases. Prenatal syphilis was given as cause in 4.7 per cent; gonococcal ophthalmia neonatorum for 3 per cent and ophthalmia neonatorum with no infectious agent specified for 7.7 per cent—together nearly 11 per cent of blindness is here ascribed to ophthalmia neonatorum. Cataract and optic atrophy were the two ocular lesions responsible for most blindness (15.7 and 14.0 per cent, respectively).

From a study of Census reports and reports of Schools for the Blind, reaching back to 1890, Best[7] concludes that blindness from childhood infectious diseases, trachoma and ophthalmia, also from certain types of accidents, is on the wane, while blindness from glaucoma and from optic atrophy are increasing.

Causes of Blindness in Great Britain

A number of important studies on blindness in Great Britain[10,11,12,13] have recently appeared. The two main differences between these British statistics and our own would seem to be a higher percentage of blindness from infectious diseases and a lower percentage from accidents in Great Britain; also, a somewhat higher proportion of blindness ascribed to syphilis and the importance of myopia in the British statistics.

Discussion

It remains to consider a few of the main causes of blindness from the standpoint of the mode in which the eye is attacked and the possibilities of prevention of loss of sight and, where possible, restoration of vision. In the prevention of blindness, three measures deserve our special efforts as capable of yielding the largest harvest of results. These are (1) prevention of traumatic injuries to the eye and of sympathetic ophthalmitis, (2) control of syphilis, and (3) the proper management of every patient with glaucoma who is not yet blind. In restoration of sight, the most promising field for large results is cataract.

The prevention of traumatic injuries to the eyes lies chiefly in the hands of safety engineers for industry and traffic, of parents and playground supervisors, and of the individual himself. But in the prevention of blindness from such injuries, the physician has often a grave responsibility. In all trauma to the eye, the utmost care should be exercised to avoid infection because of the many cases of blindness which develop from infected wounds of the eye. Even a slight, superficial wound may have the most serious consequences if it becomes infected. In intraocular foreign body, if consisting of certain metals, the danger of destruction of the nerve cells by chemical action if the metal remains in the eye is added to the danger of traumatic tissue damage and of infection. A penetrating wound of the eye in the region of the ciliary body presents the added danger of giving rise to sympathetic ophthalmitis in the other eye. The first step in prevention is the aseptic toilet of the penetrating wound. If inflammation persists overlong in the wounded eye, its sacrifice must be seriously considered before the second eye becomes affected.

Recognition of the important part played by syphilis in the destruction of vision stems from investigations carried out independently in various parts of Europe in the period since the World War. Beigelman[14] recently reviewed a number of these studies and pointed out that regardless of differing economic and social conditions, of standards of living and sanitation in the countries in which the studies were made,

the investigators arrived at figures which hardly deviate from a central figure of 15 per cent for the proportion of blindness in their respective countries which originated in syphilis. Certain smaller studies made in the Western Hemisphere indicate that what was found true in Europe would be found true here if the subject were thoroughly investigated.

There is not a tissue of the human eye but is capable of reacting to the syphilitic virus by inflammatory or degenerative processes. In congenital syphilis ocular symptoms are said to be more frequent than positive blood Wassermann reactions. Blindness in congenital syphilis may develop early or late. The cornea (interstitial keratitis), choroid and retina and optic nerve are structures likely to be affected. In early acquired syphilis a neglected iritis may end by destroying vision. Still more menacing to sight is optic neuritis, a later appearing symptom. In the third stage of syphilis the choroid and retina are liable to be the seat of destructive inflammatory changes. Optic atrophy is late in appearing, but is the gravest of the many manifestations of syphilis in its effect on vision, as it marches steadily on toward blindness and we have no means to stop its course.

The problem of prevention of blindness from acquired syphilis is the problem of the eradication of syphilis itself. The answer to the problem of the prevention of blindness from congenital syphilis is, meanwhile, adequate treatment of the syphilitic expectant mother, begun before the fifth month of pregnancy.

Glaucoma is caused by increased intraocular tension from accumulation of fluid within the eye. The reason for this accumulation is blocking of the natural means of exit. Glaucoma tends inevitably to blindness if it is neglected. It is usually possible to control the condition and stop the progress of the loss of vision by instillation of a miotic ("drops") or, where this fails, by surgery. The aid of the operation is to recreate a channel for escape of the intraocular fluid. Neither drops nor operation cures the (usually) unknown cause and the patient must remain under the supervision of the physician indefinitely. This is the crux of the problem of prevention of blindness from glaucoma and the rock on which prevention too often splits. Only second in importance is the education of the glaucoma patient, comparable to the education of the tuberculous or diabetic patient, in a way of life that gives his disease the minimum incitement to strike back at him. The individual with glaucoma must learn to control his emotions.

In respect of ophthalmia neonatorum it is important that the public, the public health officer and the medical profession should realize that this disease has not been eradicated but is being held in bounds. There is reason to assume that any slight let-up of vigilance would be followed by an alarming recrudescence of blindness from this cause.

Trachoma is primarily an economic and public health problem. In one center after another it has been proved that its eradication is possible. A promising new treatment of trachoma is with sulfanilamide. Trachoma blinds from ulceration of the cornea with perforation and prolapse of the iris and secondary glaucoma, from scar tissue formation, from xerophthalmia, and from opening the way to a destructive secondary infection.

It seems beyond dispute that a certain number of persons of all periods of life—children, old people and all ages in between, how many we have no means of knowing—are today remaining blind needlessly. The motion is widespread that blindness is irremediable. It is particularly to be regretted that this notion should have become established, as seems to be the case, in many State Schools for the Blind, or, perhaps it would be more accurate to say, in the dispensers of the funds of these schools. With the advances made in recent times in the surgery of the eye, schools for the blind and pension rolls of the blind should be subjected to the scrutiny of competent ophthalmologists who are thoroughly alive to the present-day possibilities of ophthalmological surgery. For the best results in congenital conditions, the blind child should, however, be treated before he reaches the age of admission to a school for the blind. A baby a few months old may be operated on for cataract. There is no upper limit to the age at which a senile cataract may be removed, and the results of proper surgical treatments are usually good. In various other conditions preventing vision, besides cataract, surgery today offers a prospect of cure; one may mention separation of the retina, dislocation of the lens, and even, in some cases, scars of the cornea. There are, in addition, many thousands of persons with

vision so reduced as to be blind, to all intents and purposes, in the business of earning a living, who could be removed from the ranks of the "economically blind" by the use of contact glasses and telescopic spectacles. Today's interest in the subject of blindness is a challenge to the ophthalmological profession to bring its knowledge into the open and to organize its resources for an attack on this age-old, but today not quite so hopeless, problem of blindness.

Summary

A series of 2,131 cases of blindness in adults are analyzed. These represent the Michigan register of persons eligible to receive State-Federal grants under the Aid to the Blind provision of the Social Security Act.

The chief causes of blindness in this series are infectious diseases and traumatic and chemical injuries, with 494 and thirty-three cases, respectively. Congenital and hereditary origin (excluding syphilitic) and noninfectious systemic diseases come next in frequency, with 252 and eighty-three cases of blindness, respectively. In 927 cases the etiology was unknown to science, undetermined or not specified.

Syphilis is responsible for destruction of vision in 146 cases, which is approximately 7 per cent of the total series and 30 per cent of all cases due to infectious diseases. The chief ocular lesion producing loss of vision is optic atrophy with 396 cases or 18.5 per cent of the total series, followed closely by cataract with 386 cases or 18.1 per cent.

The ocular lesions through which the various basic etiologies most often produce blindness and the basic diseases most frequently behind certain ocular lesions which destroy sight are shown in Tables or discussed.

The most common causes of blindness in five other states and in the country at large are briefly reviewed for comparison.

The time would appear to be ripe for concerted action in prevention of known conditions which lead to loss of vision, and for searching out those cases of blindness which could profit from modern ophthalmological surgery and assuring, so far as possible, that no blind individual who could be given sight remains blind through ignorance, neglect or inability to secure the needed ophthalmological attention.

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Ideal Obstetrics

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More than 90 per cent of pregnant women deliver normally if there is no interference. Even though the abnormal group is relatively small, it includes complications serious enough to cause fetal and maternal mortality.

Doctors in general practice can perform an excellent brand of normal obstetrics. To do so they must be able to distinguish between normal and abnormal cases. The simple axioms set forth in this paper should help them to recognize the abnormal case before ideal conditions have been lost.

■ DURING the past two decades a better grade of obstetrics has been taught than ever before. The value of these teachings has not yet been fully realized in the practice of obstetrics.

A well-trained obstetrician, aided by the many recent improvements in medical and surgical care, is equipped to manage the complications of pregnancy. However, the general practitioner is delivering most of the babies for American women, not the specialist. Therefore, this paper is intended as a guide to these men in avoiding the common mistakes which occur frequently in

the obstetrical departments of the average general hospital.

Several years ago conditions became so deplorable that hospital staffs found it necessary to define normal and abnormal obstetrics; and to designate those qualified to perform operative procedures. This classification has improved the results in recognized abnormal cases. Nevertheless, many doctors unknowingly continue to get themselves into embarrassing situations. When danger to mother or baby finally warns them to call a consultant the conditions for ideal management have often been lost.

More than 90 per cent of pregnant women deliver normally if there is no interference. The remaining 10 per cent includes some very unpleasant complications. Even though the general doctor is the trusted friend of the family, oftentimes these serious complications may destroy this family confidence. There should be some simple, fairly fool-proof method of detecting the abnormal cases early, so that the responsibility can be shifted to men with special training.

It is the direct aim of this paper to enumerate certain workable rules for general practitioners who want to detect and eliminate the abnormal cases.

Pregnancy

Let us start at the very beginning. Every patient who has cramps and spotting in early pregnancy should be considered an ectopic pregnancy until proven otherwise. This sounds rash, but isn't. To think of an ectopic pregnancy is usually all that is necessary to lead to its diagnosis. Too many doctors have been taught that this is a rare complication. So much so, that many women are forced to lie around homes and hospitals suffering for weeks with a wrong diagnosis of threatened abortion or pelvic inflammatory disease. Often these patients are moribund by the time a correct diagnosis is established.

Remember that nearly all ectopics, even though ruptured and profoundly anemic, are saved by prompt diagnosis and good surgery. The general man who diagnoses an ectopic pregnancy is respected by the family for his sharpness in detecting this unusual complication. More important, if the diagnosis is missed until too late, the family usually thinks that had an obstetrician handled the case from the start, things would have been different. So, I urge you not to wait for the dramatic episode of street or bathroom fainting to suggest ectopic—*"They are all ectopics until proven otherwise."*

Most abortions can be handled very satisfactorily by a few simple rules. First, *classify the type* before you try to treat them. For example, a woman who spots with a few cramps has a threatened abortion. When clots are passed, it is inevitable. When some tissue is passed and bleeding continues, the abortion is incomplete. When a temperature of 100.4 or above is associated, the abortion is regarded as septic. Remember that the dangerous complications are *fatal hemorrhage* in the incomplete group and *fatal sepsis* in the septic group. Responsibility for these two groups often becomes a heavy burden for the trained obstetrician. By all means shift the responsibility early while conditions are still seemingly favorable. By so doing you are also offering the patient a better chance for recovery.

If you are called to see an abortion that is bleeding profusely—the best immediate treatment is to slip a speculum in the vagina and remove the products of conception which are being expelled through the partially dilated cervix. Use as sterile and as gentle a technique as possible. Then quickly get the patient to a hospital for further treatment.

Late hemorrhages of pregnancy, although serious, are fortunately infrequent. Placenta previa and ablatio placenta kill too many women every year. Patients must be impressed with the seriousness of reporting any vaginal bleeding to the physician. Any case of bleeding in the third trimester should be promptly hospitalized for diagnosis.

These cases are so few in the individual practice that one should not hesitate to refer them for the proper examination. If vaginal examination by an obstetrician reveals only a cervical erosion as the cause of bleeding, the case is no longer in the abnormal group. If a placenta previa or an ablatio placenta is found, careful treatment by a well-trained man is necessary. Even then, these mothers and babies are in a high mortality and morbidity group. Don't be tempted into meddling with them just because they are not bleeding very much. Potentially they are all very dangerous and a mild warning may be followed soon by a fatal hemorrhage. The risk is too great and so unnecessary. A bold examiner will cringe

when gushing bleeding starts, and then wish he had never become involved.

First Stage of Labor

It is easy to become careless in obstetrical case-management because so many labors are normal. When labor starts you have the responsibility of two lives in your hands, and you can't let go until there is an ending to that labor, happy or otherwise. Eager relatives are closely following your every move and anxiously awaiting the outcome. Public opinion has become a heartless critic of the general man's mistakes, especially since the coming of the obstetrician.

Be sure that you have a good risk from the start—no heart disease, tuberculosis, toxemia or history of dangerous obstetric complications. Don't forget, these cases are few and you can't spare the time they demand nor assume the responsibility they require.

Once you are sure your patient is normal then make sure of the baby. Never fail to carefully palpate the abdomen for presentation of the fetus or possible fetuses. To overlook a transverse presentation in early labor is downright malpractice. For when the bag of waters ruptures, ideal conditions in this instance have been lost. The cord may prolapse with fetal death or the fetus becomes tightly impacted into the pelvis in this neglected presentation. Really it is discouraging to read over still-birth histories such as those in the record rooms of modern hospitals.

Breech presentation should also be watched for during abdominal and rectal examination as their mortality is high in the best clinics. Breech delivery in a multipara can be satisfactorily performed without much special training. However, breech delivery in a primipara is hazardous because that pelvis has never been tested by a fetal head. Consultation is, therefore, of help in deciding the best course for such a case. To have a consultant nearby during the delivery of a breech is wise and comforting. Lest you be guilty of neglect—always greet a woman in labor by placing your two hands on her abodmen and don't take them off until you are sure there isn't a transverse or breech presentation. If clinical examination is uncertain, resort to x-ray rather than taking foolish chances.

Disproportion between the head and pelvis has fortunately received much emphasis, so that neglected cases are not frequent. Most of the mistakes now are in the borderline group where retrospect indicates that delivery by cesarean section would have been better than a prolonged labor with brutal forceps extraction. When a primipara goes into labor the doctor should always ask himself the question, "Will this head come through?"

If mother and baby are in good condition and membranes are intact then a trial of labor can be safely attempted. However, when membranes rupture it is imperative that the decision as to mode of delivery be determined within the next few hours. If the fetal head is down in the pelvis at or below the level of the ischial spines it will deliver from below, provided the pelvic outlet is as wide as the average adult fist. This has been repeatedly demonstrated by the Hillis impression method.[1] If these conditions do not definitely exist, call a consultant. Remember that conditions are ideal at this stage, but if you misinterpret the findings, you may deny your patient a safe delivery. Unfortunately, too many doctors call a consultant in obstetrics late when they are in trouble, instead of early to keep out of trouble. Most families cannot help but realize this negligence.

X-ray Reports.—Another dangerous pitfall is over-confidence in x-ray reports. No one can deny the value of x-ray in demonstrating the fetal and pelvic characteristics. However, you must realize that a radiograph will not accurately tell which heads will deliver from below, because there are too many incalculable factors involved. If the report reads, "No apparent disproportion between head and pelvis", do not be misled. The roentgenologist only means that as far as he can determine from x-ray, there is no disproportion. In spite of the x-ray the case may still be one of disproportion, clinically, and that is what you and the patient are interested in. Let the roentgenologist and obstetrician quibble about these borderline cases, as they usually involve a prolonged tedious labor, difficult delivery and high fetal mortality. The family will gratefully acknowledge your wise judgment in forecasting these difficult cases early.

Prolonged labor is a very discouraging complication to patient, family and doctor. Seldom can it be predicted and its course is so irregular that management is a considerable problem. Tragedies to mother and baby are frequent; hence they

do not constitute a favorable group for the man in general practice. When labor persists for twenty-four hours it should be termed prolonged labor regardless of the cause. Even though the patient may be in good condition and the family satisfied, a consultant should be requested by the doctor. This shows that the doctor is not ashamed of his management and is sincere about the patient's welfare. Moreover, the responsibility in this uncertain group is immediately shifted to the trained obstetrician. He has a better chance to help you get a favorable result, as ideal conditions still exist. Too often the consultant is not called early—the patient labors on for many hours—dehydration, sepsis and exhaustion occur. The family realizes that something is wrong. They begin to lose confidence in the doctor and demand that he do something or call a consultant. When the outcome is unfavorable they blame the doctor for neglecting the patient.

Such cases may be found in abundance in the files of the average general hospitals. The adverse criticism from just a few of these cases is quite injurious to a man in general practice. Don't let these prolonged labors sneak upon you. Call them prolonged labors at twenty-four hours, and insist upon a consultant to protect yourself.

Pituitary Extract.—There have been many reports, favorable and unfavorable, about the use and abuse of posterior pituitary extract in the first stage of labor. That it has caused rupture of the uterus, fetal asphyxia and rapid expulsive delivery has been demonstrated.

Recently, its cautious use has been of value in stimulating cases of uterine inertia. However, the relative merits of so powerful and dangerous a drug are not to be decided by one occasionally doing obstetrics. Don't forget that you are risking two lives every time you administer this powerful drug in the first stage of labor.

Second Stage

Errors of the first stage are mostly those of omission, while in the second stage they are usually errors of commission.

Artificial rupture of the membranes in the delivery room is often done promiscuously. To the doctor's surprise a loop of cord may prolapse, the arm of an undiagnosed transverse or leg of an undiagnosed breech may suddenly present. Keep these accidents in mind and make sure the head is on the perineum before you rupture membranes. If one of these accidents should occur, don't lose your head and frantically do further harm; instead call for help immediately. Not infrequently an ambitious intern or doctor will see a patient brought in with a prolapsed cord or extremity and will wildly rush in to extract or do a version and extraction. These heroic attempts are usually ill-performed under poor conditions and kill more babies and mothers than they save.

Forceps Delivery.—Another mistake is to attempt forceps delivery through an incompletely dilated cervix. I refer to the men who do it accidentally, not those who do it deliberately. By so doing, the cervix may suffer laceration or annular detachment and profuse hemorrhage may follow. Before applying forceps one should always make sure the cervix is complete, rather than assuming this because the head is on the perineum. In fact, this information can be obtained at the same time that you verify the position of the fetal head. While you are tracing the course of the saggital suture to the periphery keep cervical dilatation in mind.

Never put forceps on a head for delivery no matter how low it is, until you are absolutely sure of the position. If you fail to recognize a transverse position—the usual pelvic application will leave disfiguring marks on the baby's face. Remember that the marks you leave on a baby's head are revealing evidence of your forceps application. After forceps are applied and moderate traction fails to advance the head, you had better take the forceps off and recheck the position. All these statements are simple rules taught in medical school, but are often forgotten in the excitement of a delivery room.

Large Shoulders.—An occasional baby is lost due to the dystocia of large shoulders, causing delay in delivery with fatal asphyxia. This is one complication which must be met by the doctor in charge, as there is no time to call for help. Anyone who delivers babies is bound to encounter this problem once in awhile. Therefore, this subject should be thoroughly reviewed in standard textbooks, and the pictures of the arrested shoulders studied carefully. If shoulders fail to advance with the usual pressure from above and assistance from below, don't waste further time in pulling on the head and pushing from above. Stop and quickly check the position of the anterior shoulder; if it is directly anterior or transverse tuck it into one of the oblique diameters

and try again to deliver them. If they are not disimpacted by this procedure the posterior arm should be brought forward, down and out. This breaks up the girdle of resistance and delivery follows. Rarely shoulders may be so large that a cleidotomy is necessary for delivery after the baby dies. Call a consultant for this procedure. Arrested shoulders are usually difficult to deliver, but you can succeed more often by working deliberately, yet cautiously.

Episiotomies are indicated whenever you want to avoid perineal laceration. Only the mediolateral type is uniformly safe, as the midline type will often extend into or around the rectum, making the repair complicated. Use the least amount of catgut for best results.

Third Stage

Don't succumb to the strong temptation to meddle with delivery of the placenta. Recently, ergonovine intravenously with the shoulders has become a popular method of rapid placental expulsion. Only the obstetrician should try these new methods, as accidents may occur. An undiagnosed twin may still be in the uterus. Ill-timing may cause placental incarceration requiring manual removal. Routine use of posterior pituitary extract subcutaneously after delivery of the baby seems to safely shorten the third stage, thereby decreasing the blood loss. To have ergonovine ready for immediate intravenous use is excellent prophylaxis for post partum hemorrhage.

Post partum hemmorrhage is a constant threat to even the seemingly normal cases. The best method of immediately stopping a post partum hemorrhage is to firmly press the cervix against the symphysis (vaginal hand) and then sharply anti-flex the corpus (abdominal hand). Meanwhile, intravenous ergonovine should be given by an assistant. A sample of the blood is caught in a tube and sent for typing in the blood bank, while glucose is started before the veins collapse. Any clear-thinking physician can perform these important preliminaries while a consultant is being called to the scene.

Every physician who walks into a delivery room should have such a procedure mentally outlined to avoid confusion and wasteful fumbling. When a woman is bleeding profusely her doctor must think straight and act deliberately if he is to save her life.

Axioms for Ideal Obstetrics

1. Many of the common mistakes which cause fetal and material mortality are avoidable.
2. Ninety per cent of women deliver normally if allowed to; therefore, avoid that dangerous ten per cent by learning to distinguish normal from abnormal.
3. A woman who cramps and spots is an ectopic until proven otherwise.
4. If you first classify an abortion, the treatment is then standard.
5. Never meddle with women who bleed in the last trimester. They are abnormal cases.
6. Verify fetal presentation early, as breech and transverse may get you into trouble.
7. The question in every primiparous labor is, "Will the head come through the pelvis?"
8. Any labor of twenty-four hours or more is prolonged and belongs in the abnormal group.
9. Never use posterior pituitary substance in the first stage of labor.
10. Do not rupture membranes promiscuously.
11. Abuse with the forceps leaves a telling mark.
12. Learn to deliver impacted shoulders as there is no time for consultation.
13. Be prepared for post partum hemorrhage as the warning is brief.
14. Obtain the advice of a consultant early to keep out of trouble. Don't wait until you are in trouble to ask him to share the blame of mismanagement.

Doctors in general practice can perform an excellent brand of normal obstetrics. However, to do so they must be constantly alert to pick out the abnormal cases. These simple axioms should serve to avoid many of the common mistakes noted in the average general hospital.

Reference

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Elimination of overheating and maintenance of better conditions of relative humidity in dwellings and office buildings should also effectively reduce current morbidity from infections of the upper respiratory tract. Perhaps fuel-oil rationing may in the long run prove to be more of a blessing than a hardship. It is even conceivable that the "short and simple flannels of the poor," and the scant and flimsy, sometimes even non-existent, unmentionables of the frailer vessel may give way to comfort and woolies, fewer head colds, and lower doctor bills.—Editorial *N. Y. State Jour. of Med.* Dec. 1, 1942.

Transplantation of Preserved Tissue in Ophthalmic Surgery*

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Transplantation of preserved tissue in ophthalmic surgery has been practiced for nearly forty years. More thought has been given to it recently, especially in work with the cornea and fascia. True transplantation most likely does not take place, but a replacement, with the graft acting as a supporting membrane.

Heterogenous grafts of cornea, bone, cartilage and fascia, preserved in various media, have been employed in eye surgery. Recently, transplantation of cornea from different species has been revived, with contradictory results. Little has been done with conjunctiva.

Progress of the author's experimental research with preserved, heterogenous conjunctiva on rabbits and monkeys will be discussed in this presentation.

■ TRANSPLANTATION of preserved tissue has been attempted for many years. However, the first attempt at transplantation of preserved tissue in eye surgery that I have been able to find in the literature was when Salzer[21] reported having taken horse's cornea preserved in formalin, washed out in normal saline for 24 hours and then transplanted into the eye of a rabbit, blending with the surrounding tissue and gradually becoming clearer instead of more opaque. He had exhibited a rabbit which had had both eyes operated, before the Morphological Society in Munich[22] and sections of these eyes, after a period of seventeen months, in Heidelberg. Absorbtion did not appear clinically until fifteen months after the operation; and the graft had disappeared entirely seventeen months after the operation (Heidelberg, 1910).

A section after seven months showed the central part to be a homogenous mass; but the periphery and bottom, next to the cornea proper, showed a blending, with corneal cells. After seventeen months the cells were, seemingly, without nuclei and more compact than the surrounding tissue, but showing definitely, the lamellar construction. There was an increase of nuclei in the surroundings. He feels that reports like those of von Hippel and Proeller were not observed long enough (after a few weeks or months). He also includes the experiments of Magitot. These were all partial transplants, not through-and-through grafts. He tries to disprove Magitot's assertion, and rightly so, that the substantia of the transplant lives. He himself is sure that the graft acts only as a framework for wandering cells from the corneal sides and from beneath.

Magitot[15] reported the use of cornea preserved in Locke's solution, then transferred to hemolyzed blood serum and kept at 5° C. He was able to keep these tissues alive for as long as one week; the graft to which he refers came from an eye which had had a marked glaucoma. This, too, was only a partial graft, going only as far as Descemet's membrane. Incidentally, at this early time, Magitot referred to the use of cornea from still-born infants as a possible source of material. In 1926 Kopponyi and Byfield[9] used the mesentery in a transplant on a rabbit's cornea, and with apparent success. From the description, however, it was difficult to ascertain whether this was a through-and-through corneal graft, or one of only partial depth; the graft did not become transparent.

Most of the work since then has been with the idea of confirming or disproving Salzer's original concept. He was firmly convinced that the graft acted only as a guiding structure for the ingrowth of new tissue from the cornea of the recipient. In other words, it was not a matter of transplantation, but one of replacement or regeneration. This is in keeping with the later version of McCallum[14] and others which we will discuss later, who states:

> "It is important to observe that in some cases, as in transplantation of bones and nerves, the graft may survive only as a sort of splint which supports and guides the new growth of tissue from the host, which finally absorbs and replaces it entirely."

In recent years, many men have used cold to preserve the cornea, advocated chiefly by Filatov[4] and since followed by many others. They use temperatures of from 2° to 3° to preserve the cornea, the eye being kept in Ringer's solution

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or normal saline. These grafts must be used within a few days, at the most. Testing the vitality by tissue culture, Filatov and Bajonova,[6] preserving the cornea at 2° C. to verify the vitality of dried cornea of the rabbit, found that with the loss of 76.3 per cent of its initial weight, the cornea is capable of growing; in other words, preserves its vitality. Cornea preserved in this way must be used within a very short time. There must be some other factor other than loss of water, for Busse-Grawitz[2] has enclosed sections of mummy muscle and other tissue in a collodion wrapping, tied each end; then dipped in fluid collodion. He found that cells regenerate and multiply. Tissue from one mummy was from the first dynasty, 5300 years old.

Thomas[25] used scleral tissue to replace the whole thickness of the cornea and found that after a period of about two years, the grafts developed epithelium and endothelium from the host. They also became less opaque. He thought that this was due to the increase in vascularity. To this I cannot subscribe, for my experience has been that the less vascularity we found in the host, the more favorable the prognosis for a satisfactory result with clear cornea. Thomas also transplanted cornea which had been boiled in oil and found that, although the graft adhered, it remained opaque. This also fits in with Salzer's premise that the graft merely acts as a framework for new tissue to come in and replace it.

Petrosiantz,[19] in a study of what he terms "Conserved Cadaver Eyes," used the slit-lamp to study daily corneal changes of eyes kept at temperatures of 2 to 4° C. He found that the epithelium becomes opaque, irregular and edematous by the seventh day; by the fifteenth day the cornea is only semitransparent and by the twentieth to twenty-fifth day it is completely opaque. The clinical data following the use of this tissue prompted the conclusion that the foregoing changes in the clarity of the cornea and the regularity of the epithelium have, apparently, no effect on the transplant. This is of particular interest; for formalinized cornea, or those preserved in other fluids, are quite opaque.

Loehlein[13] was probably responsible for much of the renewed interest in the use of formalinized cornea. He agrees with Salzer "that one does not expect a survival of the transplant but a gradual displacement by surrounding tissue." This included a report of two humans in which formalinized cornea was used. One of these was a bilateral transplant. One eye utilizing fresh cornea; the other, formalinized fixed cornea. The result in the latter was better than the one in which fresh cornea was used. Elschnig, in discussing this paper, agreed that the transplant must be replaced by new growths of corneal tissue. The work of Rosenbaum and myself,[29] which was begun before the publication of Loehlein's paper; and since this, Scherschewskaya[28] reporting the experimental results of operations on thirty-seven rabbits with healing in twelve, or 32 per cent, are of interest. He reported one glimmering, three transparent and eight opaque results. He kept the cornea in 4 per cent formalin for four days and then allowed it to stay in Ringer's solution for four more days, changing the Ringer's daily. He finds that there is no more tissue reaction to formalinized grafts than to the fresh transplant. He also subscribes to the findings of Salzer, as previously discussed; and also in regard to the long time it takes for the resorption of the graft and for its replacement through regeneration. Other investigators, including Ascher, Weidenreich and Bussaca are quoted by Scherschewskaya as furnishing encouraging results in this line of endeavor. Deutman[4] published the results obtained in the transplantation of formalinized cornea in five rabbits, in which all of the grafts took and healed well with less reaction than when living cornea was used. After observing over a period of three to eleven months, none of the grafts was clear, the opacities being located chiefly in the posterior parenchyma.

With Salzer's work as a foundation, Rosenbaum and I decided to attempt perforating grafts, using formalinized cornea. The basis for the use of fixatives in preserving tissue is that it kills living cells by stopping enzymatic processes associated with life; and also, that it coagulates protein. Formalin, used here in 10 per cent solution, is probably the most widely used fixative and was the one used by Salzer; which was the reason that we began our experiments with it. In one group of rabbits an attempt was made to graft formalinized dog cornea. The cornea was removed from the eye of a dog that had been killed in the surgical laboratory and the tissue immediately dropped into the formalin, where it was kept for from seven to twenty-eight days;

or, until the day preceding the operation. Twenty-four hours before it was to be used it was washed with running tap water until just a few minutes before the operation, when it was transferred to sterile saline. One dog's cornea was used for four different grafts, a single quadrant being used each week. In this way some idea of the optimum time of fixation might be gained. Five rabbits were operated, using this type of tissue. In four the graft remained in place; in the other it was expelled following an infection. None of these grafts became clear, even over a period of one year's observation. There was a moderate amount of postoperative reaction, only slightly more so than that following rabbit-to-rabbit grafts of similarly treated tissue. Vascularization began within a week to ten days, reached its peak in about two weeks and then gradually subsided. The length of time the cornea had been kept in the formalin solution seemed to make no difference.

In the second group in which formalinized cornea from the rabbit was used, one of the four rabbits became infected and the graft was lost. The others healed promptly. To reduce the amount of reaction, the method of washing the cornea was changed, washing with water that had been passed through a Berkefeld filter. Five rabbits were used in this group, only one of which became mildly infected; not enough, however, to result in sloughing off of the graft. The reaction was less than where dog's cornea had been used and the transplants washed with water passed over the Berkefeld filter showed less swelling and redness than the others. Of the nine grafts in this group, seven healed well. Anterior synechiæ developed in three cases; in one, the iris was attached to the transplant; in the other two the iris was adherent to the wound at the upper limbus. Three grafts in this group were definitely clearing at the time of the report. We tried Petrunkowitsch solution, thinking that possibly the method of fixation might play some part in the opacity of the grafts. There did not seem to be any difference in the opacity of the graft or in the progress of the healing. The method of operative procedure was that used by Dr. Alvis and myself,[28] using the Wiener corneal punch. A histological report of one of these, made by Dr. Harvey Lamb, follows:

"Microscopic examination of dog's corneal transplant to the rabbit's cornea, one year postoperatively, presents a perfectly smooth union of the adjoining surfaces. The thickness of the transplant is a little greater than over the remainder of the cornea. This change of thickness is not abrupt, but gradual. Just beyond the end of the transplant, that part of the cornea farther from the corneo-scleral junction, is somewhat thicker than the corresponding part of the cornea on the opposite side. The anterior epithelium of the cornea proceeds smoothly and unaffected from the surrounding rabbit's cornea over the surface of the transplant. Bowman's membrane is not present in dogs or rabbits' eyes. The individual lamellæ of the substantia propria have joined smoothly, end to end, although at one side with the formation of a sharp angulation, or wave.

"The limits of the corneal transplant are shown only by the break in Descemet's membrane. On one side, the end of Descemet's membrane belonging to the surrounding rabbit's cornea is turned anteriorly a little; on this side, a second thickness of Descemet's membrane lies peripheral for quite a distance from the transplant, just behind Descemet's membrane of the host. This second layer of Descemet's membrane has probably been derived from loose posterior endothelium of the dog's transplant. On the opposite side of the transplant Descemet's membrane gradually thins out and disappears before the rabbit's cornea is reached. Just beyond the end of the transplant on this side and behind the rabbit's cornea, the absence of Descemet's membrane continues for a short distance, and the posterior endothelium is considerably degenerated here. In the dog's transplanted cornea the anterior epithelium is irregular in thickness, and the epithelial cells under the superficial flattened cells of the anterior epithelium are very irregular in arrangement. Anteriorly in the dog's transplant and in the adjacent rabbit's cornea on the side nearer the sclero-corneal junction, the corneal corpuscles present mild degeneration with the formation of a few microphages."

A microscopic section of one of the better rabbit-to-rabbit grafts, nine months postoperative, was also made by Dr. Lamb, with the report as follows:

"The formalinized corneal transplant is a little thicker than the surrounding cornea. The anterior epithelium of the host is smoothly continuous with that over the transplant. The lifting of the epithelium, in places, over the transplant is an artifact, being also observed over the surrounding fixed part of the cornea. The thickness of the anterior epithelium is of good, normal degree over the transplant.

"The lamellæ of the substantia propria meet well end to end at the line of junction between the transplant and the cornea of the host. The individual lamellæ throughout the transplant and surrounding cornea have the same thickness and the same good staining of the corneal corpuscles. A few small capillaries are present between the anterior lamellæ of the corneal transplant and that part of the host nearer the sclero-corneal junction. No additional posterior endothelium or Descemet's membrane is present behind the transplant itself."

It is my belief that the difference in results between the use of dog's cornea and rabbit-to-rabbit transplant is not due to any inherent dissimilitude in structure or otherwise between the two, but solely to the difference in thickness of the grafts; the dog graft being thicker than that of the rabbit. It seems desirable to have the cornea of the donor and that of the host as nearly as possible the same thickness. The time required to attain the ultimate result is long, as has been repeatedly stated by Salzer, who has often admonished many of the researchers on corneal transplantation for having made their claims too soon. It stands to reason that the more nearly the donor graft, even though it be preserved, approaches all of the characteristics of the tissue of the host, the better will be the final result, for the reason that, physically, it will be easier for the cells from the surrounding tissue to wander in.

As to the changes in the epithelium, these correspond to those I found in my experiments on regeneration of the cornea[27] on rabbits and other animals. While the epithelium would cover the entire cornea from the surrounding periphery and gradually assume the characteristics of the normal epithelium, the columnar epithelium never did take on the regularity and distinctive peculiarities of the normal cornea, after months, or even after years following its removal. I was never able to find mitotic figures in the cornea proper. This fits in with the theory that the corneal corpuscles wander in from the side. Nageotte,[17] although not working with transplantation, believed that the cornea may become invaded with leukocytes, which are not to be distinguished from normal cells of the cornea, and that they take on the appearance, function and activity of corneal corpuscles, from which they cannot be differentiated.

Hildreth,[7] using the work of Koontz[8] as a basis, used ox fascia, prepared and marketed in a sealed ampule, as a substitute for fresh fascia lata from the patient, in performing Lexer's operation for ptosis. He finds the preserved fascia strong and does not act as a foreign body; nor does it induce lid deformity. Koontz had used alcohol prepared ox fascia to repair defects in the stomach, bladder and intestines. This had been tried by Neuhoff, in 1917, with live fascia, but was absorbed by the stomach and digested; this did not happen if gastro-enterostomy were performed, thus removing foreign protein reaction which prevents the successful employment of living, heterogenous grafts. Koontz prevented the digestion in the stomach by giving bismuth-subnitrate by mouth. Nageotte's conception of the collagen fibers of the connective tissue as inert, nonliving substances, led him to the use of dead tendon grafts for the repair of anatomic defects in living tendons, in 1917. The fundamental, biological mechanism may be stated as follows: The dead cells are carried away by the wandering cells of the host. Fibroblasts from the host unite with the framework of the graft and a new vascular network is installed. The fibers of the graft do not act as a foreign body, produce phagocytosis or show a tendency to be absorbed, because they have not been altered, either chemically, or by their preservation in the alcohol. They are similar, in every way, to like fibers of the host among which they are implanted. Alcohol-preserved fascia from other individuals or animals can be used with impunity, because alcohol destroys antigen and therefore does not get the foreign protein reaction that might be expected if a piece of living ox fascia were implanted in another species. To repeat:

> "The collagen fibers of the connective tissue are inert, intercellular substances and are not alive in the sense that living protoplasm is alive. The preservation of these fibrils in alcohol does not change them, either chemically or physically, as the connective tissue fibrils of catgut are changed in the course of its preparation; physically, by the use of heat and chemically, by chromic acid or iodine. When the ox fascia fibers are taken out of the alcohol and washed in salt solution, the collagen fibers are unaltered when implanted in the host, new cells wander in from the surrounding tissues and repopulate the implanted fibers, fibroblasts and blood vessels grow in, and soon the implanted fascia is a living part of the organism into which it has been implanted. There is no leukocyte or round cell reaction as in the case of catgut or kangaroo tendon and hence, no tendency to absorption."

Other preservatives besides formalin and alcohol have been used for transplanting tissue. O'Connor[18] used refrigerated cartilage isografts after having been preserved in merthothiolate and used successfully after a period as late as two years after preservation. The cartilage is not materially changed by preservation and maintains its identity indefinitely after grafting. The method used was that recommended by Morgan, Jamison and Powell.[16] The cartilage is obtained under

sterile or unsterile conditions, stripped of its perichondrium, then thoroughly washed with tap-water to remove blood and placed in a sterile glass container and covered with a solution of one part of aqueous merthiolate (1-1000) to four parts sterile normal saline. The solution should completely cover all of the cartilage by at least one inch. The container is covered and placed in a refrigerator. Cartilage thus preserved can be used to repair defects in the orbital rim, or to fill in the cavity enclosed by the capsule of Tenon after enucleation, providing the cavity is clean.

Plastic repair of conjunctival defects with fetal membranes has been recommended by de Roetth,[3] but these were fresh tissues and preservatives had not been used. He obtained the membranes by cesarean section and kept them in tepid Locke's solution. One to fifteen hours elapsed before use. He operated on six cases of symblepharon and two for enlargement of the socket. The membranes took in every case. For five weeks they showed no change. In the next weeks the grafts shrunk and ten weeks after the operation seemed to have disappeared; but there was always more fornix left than before the operation. The shrinkage was extensive, but the membrane seemed to have changed to conjunctiva. In one case of symblepharon due to phenol, there seemed to be little shrinkage. His conclusions were:

(1) The embryonal tissue used has a property of being transferred to conjunctiva. The epithelium of the membranes excised two and four months after transplantation showed the same histological structure as the bulbar conjunctiva.

(2) In the successful case, the course of the vessels in the graft was like that of the normal conjunctiva.

(3) Result in shiny, transparent tissue. "Whether graft itself or replacement, I do not know." He quotes Burger[1] as having used fetal membrane to line an artificially formed vagina.

A little over a year and a half ago Dr. Orwyn Ellis and I made a preliminary report before the Los Angeles County Medical Society on some experimental work we had been doing on rabbits and monkeys with preserved, conjunctival grafts. The research was begun in the Spring of 1941 with the coöperation and facilities of the University of Southern California School of Medicine and has been continued since in the research laboratory of the Zoölogical Hospital of San Diego and the Oscar Johnson Institute, of St. Louis. The object was to try out specially prepared heterogenous and autogenous grafts of conjunctiva with the object of using the method, if successful, for replacing lost bulbar and palpebral conjunctiva in man.

Technique

The method of preparing the conjunctiva for implantation was as follows: Large pieces of conjunctiva were carefully dissected from freshly obtained cows' eyes, as free from subconjunctival tissue as possible. These were stretched over thin slabs of cork and placed in formalin solution, 4 per cent. Twenty-four hours before using the tissue it was removed from the formalin solution and washed in running tap-water for twenty-four hours, then transferred to normal saline solution, where it was kept for a half hour. This latter procedure was repeated 8 times. The first experiments were carried out on rabbits under intravenous and local anesthesia. The upper conjunctival cul-de-sac was then excised, including fornix, bulbar and palpebral conjunctiva. A previously prepared piece of dentist's molding material, shaped to fit the entire cul-de-sac with a piece of the center cut out to prevent injury to the cornea, was then taken from the sterilizing solution and the top half covered with the prepared conjunctiva. The smooth side covered the molding material so that the rough side would be in contact with the denuded, upper cul-de-sac surface. A preliminary canthotomy having been done sometimes, so as to facilitate the easy insertion of the graft-covered mold, as well as previously placed sutures with which to close the lids, the mold was carefully inserted under the lids and the sutures tied, thus sealing the lids and holding the graft firmly in place.

A week later, the sutures which had not already become loose were removed and the molding material taken out. It was observed at this time that the new conjunctival implant was firmly adherent to the underlying structures and, when it was forcibly removed a raw, oozing, granulating surface was found underneath. By the use of this implant the conjunctiva seemed to have been restored to its previous condition and took on the gross appearance of normal conjunctival tissue.

Controls were run, using the molding material without any conjunctival implant, as well as hav-

ing used neither, after having removed the conjunctiva from the upper cul-de-sac as described above. While the controls healed less rapidly, with a smaller sulcus resulting, the difference was not great. It was also found most difficult to remove the conjunctiva and produce a symblepharon by burning with the actual or electrocautery. In these cases the cul-de-sac was restored almost completely, using neither mold nor graft, delayed healing being the only feature observed. We felt that final judgment must be deferred until we had produced a complete symblepharon first before trying the graft to restore the cul-de-sac.

A complete symblepharon was finally produced at will in the monkeys with the use of concentrated lye, applied to the conjunctival surface and immediately brushed off with a sponge and then washed out with a solution of boric acid. It was easier to accomplish this in the rhesus monkey eyes, since they seemed to have less regenerative power than those of the rabbits. Two such cases are now under observation at the Zoölogical Hospital in San Diego. In the first, where a complete symblepharon of the lower lid was achieved, the scar covering the entire lower half of the cornea, the graft was placed over the molding material, as above described and held in place by means of the previously placed lid stitches, which were removed five days later. The entire cornea was steamy, the pupil being barely visible. This rapidly cleared so that within a period of two weeks, an examination, without means of magnification, revealed it to be perfectly clear in the upper half and almost so in the lower, where the adhesion had been dissected away. The graft was firmly adherent at the time of removal of the mold, while neither the eye nor the lids showed undue signs of swelling or irritation. The conjunctival cul-de-sac, at this time (six weeks later) appears no different than that of the other eye and is of the same depth.

In operating on the second monkey, instead of placing the molding material in the cul-de-sac with the graft wrapped around it, a stitch was placed in each of four corners of the prepared graft, having first relieved the symblepharon, as in the first case, by careful dissection. The four stitches were then placed in corresponding points of the edges of the conjunctiva of the host and tied, the remaining edges being approximated with a continuous, running stitch. The piece of preserved conjunctiva was first trimmed so that it would be about 20 per cent larger than the area of the prepared surface which it was to cover. Finally, two double-armed sutures were placed in the bottom of the sulcus and brought out on the skin surface at a point corresponding to the lower border of the orbit and tied over a small glove button. The healing in this case was even more rapid than that of the first monkey, with no apparent irritation or swelling, the animal being able to keep his eye open at all times. Four weeks later the new cul-de-sac looked like that of the other eye. Other similar experiments are in progress, with the same, or similar procedures, and will be reported at a later date. Controls will also be run, although we have already discovered that the monkeys have not near the regenerative power of the rabbit, but very much more than that of man.

In addition to transplanting the preserved conjunctiva to replace that of the fornix in rabbits and monkeys, we buried dog's conjunctiva, preserved in alcohol, after having been stretched across a piece of cork and floated, conjunctiva down, in the 95 per cent alcohol. For thin tissue like the conjunctiva, this works equally as well as formalin and can be washed out very much more easily than the formalin, requiring only a few minutes to free the alcohol. The tissue is equally well preserved. For the cornea it will not do, as it distorts it and shrinks it too much.

A piece of dog's conjunctiva was buried under the skin of a rabbit's belly. After five days, it was removed. Externally, before removal, there was no noticeable reaction and no swelling of the outside skin. The wound was opened and the buried piece of prepared conjunctiva prepared for section. Dr. Frank McDowell, Department of Surgery, Washington University School of Medicine, prepared and examined the slides. He reported that slide No. 45 from this graft showed much the same changes as his homografts; i.e., early round cell infiltration with some small amount of exudation. Those of a similarly buried transplant, removed after a period of three and one-half weeks, show excessive exudation and beginning destruction and digestion. In some places, there appeared to be replacement with fibrous tissue. In fact, even at this date, he could not be sure that any epithelium remained. This is not at all surprising, in view of the work on tissue transplantation done by Leo Loeb,[11] Sie-

vert[12] and many others. Loeb felt that it was possible that the tissue fluids of the host have a directly harmful effect on the transplanted structure. Also, that increased bacterial activity, due to lowered resistance, played a part, injuring the epithelium. He found that the hair follicles were better protected against this action than the rest of the epithelium. Some of the epithelial cells, even in the heterogenous tissue, start to grow, but soon deteriorate and die off. The closer the relation to the host tissue, the more chance the cells have to live. This means that autogenous grafts grow best, and the farther away from the original species, the less chance for life. In his article on "Individuality Differential and the Reactions against Transplanted Tissues," he states that the similarity or difference in the character of the individuality—race and species—differentials between host and transplant determines the reaction of the host against the transplant in the case of normal tissues as well as of tumors; and, in addition, it determines the active immunity against tumor growth. In this differential he uses a simile which he calls "A spectrum of differentials," which he compares with the colors of the optical spectrum. Since each differential is genetically composed of multiple factors, and no definite statement can be made as to their number, it is possible that the totality of the chromosomes, with the exception of the sex chromosome, participate in the composition of the differentials. He considers the lymphocytic reaction the most sensitive reaction for the detection of biochemical differences so far discovered. The smaller the difference between the differentials of host and transplant the later will be the date of the appearance of the reaction. It seems as if the dissimilarity between the two differentials leads to the development of the syngenesio-homoio-race and heterotoxins which are directly responsible for the reaction on the part of the connective tissue and lymphocytes, as well as the interference with complete vascularization. This had been shown by work of Loeb and Addison[12] in their previous experiments, concluding that there exists a difference between the adequacy of different species as a soil for epithelium of the guinea-pig, and that the more nearly related the two species are, the better will be the growth of the transplanted epithelium. They therefore arranged the species in the following order, indicating the gradual decrease in the adequacy of the soil for transplanted guinea-pig skin: (1) guinea-pig; (2) rabbit; (3) dog; (4) pigeon; (5) frog.

All of these factors are eliminated, however, with the transplantation of preserved tissue, since the changes brought about by the use of the preserving fluid eliminates the biochemical factor. However, there is something more to be taken into consideration, which is the fact that all cells are killed by the preserving process and we do not have even a start of growth of epithelium. We know, for example, that we can imbed autogenous skin transplants, burying them under the surface (Esser inlays) and secure takes in them, almost 100 per cent. We are also able to do this with autogenous mucous implants. Here, however, we have the living epithelium to deal with, which gets its nourishment from the underlying tissue of the same host, and therefore having the same differentials as the transplant, hence producing practically no abnormal tissue reactions. When we begin to use preserved tissue for transplantation, we have only dead cells to deal with and must therefore depend on the ingrowth of similar cells from the surrounding tissue of the host. This takes place in the case of the connective tissue cells; but, unless we have epithelial cells to grow into the transplant from the surrounding tissue, the result is bound to be a failure, from a practical standpoint, since epithelial cells reproduce only epithelial cells, connective tissue only connective tissue cells, etc., etc., as found by Thygesson[26] in his experiments with tissue culture in vitro of human epithelium, regardless of whether the tissue were taken from fetuses, stillborn or adults. Therefore it stands to reason that, since we know that we can transplant preserved cornea and that the epithelium will be replaced by cells from the epithelium of the surrounding host, there is no reason why we cannot conjecture that the epithelium from transplanted, preserved conjunctiva will not be restored in the same way from the edges of the normally remaining conjunctiva. This necessarily presupposes that the edges of the contacting host must retain normal conjunctival epithelium or normal cornea; otherwise, the whole theory falls to the ground.

Recently, Rozentsveyg,[20] Sie-Boen-Lian,[24] Langer[10] and Zeulsina[30] have reported transplantation of preserved conjunctiva from the cadaver for replacement in scars, burns and trachomatous pannus, but this tissue was kept in a cooler and

contained live cells when used, so that it does not apply here.

Conclusion

In conclusion, we believe that there is not only a possibility but a probability that preserved, heterogenous implants may prove of value in plastic surgery wherever mucous membrane is needed. This applies, not only to the use of mucous membrane for the eye and socket, but to surgery in general, wherever mucous grafts are indicated. Our experiments, however, will be limited to conjunctival grafts for eye surgery. We can visualize the use of prepared conjunctival tissue for eye surgery, just as prepared fascia and cartilage are used today; and we hope to include, in a final report, the use of these implants to restore the sulcus after symblepharon, or to prevent adhesions from chemical and other burns of the eye.

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Dissection of specific regions of the body to refresh previous knowledge and as preparation for surgical specialties or investigative work. If time permits and suitable material is available, the study may be extended to the microscopical and developmental anatomy of the region. Informal lecture the first part of the afternoon followed by dissection of the part under consideration. Graduate or postgraduate credit can be arranged. Fee $25.

For further information, address:

Department of Postgraduate Medicine
University of Michigan
Ann Arbor, Michigan

The Challenge of 1943

The year 1943 offers a challenge to every Michigan physician who remains in private practice. Thirty per cent of our doctors are in military service and before the year is ended others may be taken. This throws an additional load upon each of us and leaves some areas with very few remaining doctors of medicine. How we serve our patients during this critical period will perhaps determine the future of the practice of medicine.

Certain forces in our national government would solve their problems by regimenting us and by distributing the available physicians wherever there seems to be a need. They would completely ignore a vital factor in the treatment of the sick: confidence in and reliance on one's own doctor—and they would ruthlessly destroy the family-patient-physician relationship. They would supplant the medical agents in our towns and cities by allowing inferiorly trained men to care for our people, but would refuse to use them in the military services. They would turn the direction and, in some areas, the actual practice of medicine over to men trained only in the public health sciences.

None of these things must happen. We must guard zealously all of the gains made by scientific medicine during recent years. Our colleagues in the services are depending upon us to maintain our present position and to so serve our people that no demands for change will be made.

H. H. Cummings

President, Michigan State Medical Society

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President's

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EDITORIAL

STAMPS AND BONDS

■ THIS has been said repeatedly, and stressed over the radio and in the press, but it will bear repeating: This is *our* war as well as the other fellow's. Most of us have some very close friends or relatives in it. We cannot afford to let them down. Our bit is to buy stamps and war bonds. Ten per cent of income has been fixed as a minimum. Have we bought them? and why stop at ten per cent? An all-out effort calls for all we can do.

Buy them for an investment on an annuity basis.

WAR AND SALVAGE

■ To move every pound of critically-needed waste materials into the channels for the manufacture of implements of war, is the over-all objective of the Salvage Branch of the Conservation Division, WPB. To make every man, woman and child in America conscious of this need, and to secure the active coöperation of every American to "get in all the scrap—NOW," is equally important.

The present immediate objective is to urge and assist the executive management of every industrial establishment in the country to locate, classify and move into war production channels all dormant and production scrap in their possession as speedily as possible. "Dormant" scrap is defined as obsolete machinery, tools, equipment, dies, jigs, fixtures, etc., which are incapable of current or future use in the war production effort because they are broken, worn-out, irreparable, dismantled or in need of unavailable parts necessary to practical reëmployment.

Scrap of all sorts, especially metal and rubber, is needed to make war materials and to keep the steel and other industries busy. Practically every doctor still has some old rubber equipment or broken or discarded instruments. Surgical Instruments are made of the best of steel and will work into the machines of war very satisfactorily. It is our duty as well as our privilege to turn this material into the scrap heap.

LOWERED MEDICAL STANDARDS

■ IN the Fall a communication was sent by the office of Emergency Management War Man Power Commission to the Executive Committee of the Council Michigan State Medical Society suggesting that temporarily the qualifications to obtain licenses to practice medicine in some of the western states be relaxed in order to provide for the care of the civilian and industrial medical needs which was alleged to be inadequate. The Executive Committee considered and frowned upon the suggestion. They felt there were still enough available doctors and that standards now set should not be lowered.

In Chicago at the conference of State Secretaries and Editors November 20 and 21, several of the representatives of government suggested that the needs of civilian and industrial medicine demanded provision be made so that refugee physicians and graduates of substandard schools could be given permits to practice in the various states. A resolution putting the conference on record as favoring that move was introduced and tabled after a sharp discussion.

Within a week of returning from that meeting the form of a bill drafted to accomplish just that suspension of requirements came to our desk. The source of the proposed bill is only surmised, but it is drawn so as to fit any state, and have certain wording made to apply in the particular state selecting to be the guinea pig. The proposed bill and submitted argument read as follows:

INTERPRETIVE SUMMARY

A. It is becoming increasingly difficult to give medical service to considerable portions of the population in states where large industrial communities have sprung up suddenly or where large numbers of physicians have been withdrawn for the armed services. In many of the states there existed even prior to the war too few physicians for the population. Now, due to enlistments, the ratio of physicians to population is extremely low, to the point, in fact, where it will be relatively difficult even to relocate physicians within individual states without depleting other areas in those states.

There are approximately 176,000 physicians in the United States, of which only an estimated 129,000 were in active private practice prior to the war. By October, 1942, approximately 40,000 physicians were enrolled

in the Army and Navy, or 95 per cent of the quota of 42,000 physicians required this year. There remained in private practice on September 1, 1942, approximately 99,000. It is estimated that, on October 15, there were 28 states which showed a physician-to-population ratio of less than 1 to 1,500.

There are approximately 400 critical areas in the United States where there is a serious shortage of physicians. In some instances it will be possible to relocate physicians within the State where there are needs for increased medical care. In other instances, it will be necessary to traverse State lines in order to obtain services of needed physicians.

This Act authorizes doctors, dentists, and registered nurses from other States to practice, during the effective date of the bill, in any State enacting the legislation. Section 1 is statement of purpose. Section 2 empowers the proper State official to direct the appropriate licensing officer or bodies of the State to issue temporary emergency certificates to such physicians, dentists, and registered nurses, licensed as such outside the State, as are believed qualified to practice during the emergency. No license fee is to be charged for the issuance of an emergency certificate.

PROPOSED BILL

Out-of-State Physicians, Dentists and Nurses Act

B. (Title. It should conform to State requirement. The following is a suggestion, "An Act to provide for the temporary admission to practice of physicians, dentists and registered nurses to protect the health of the civilian population during the war emergency period.")

(Be it enacted * * *)

Section 1. Statement of Purpose. (The Legislature finds that a serious public emergency exists in this State because of the demands of the armed services for physicians, dentists and registered nurses and that there is a necessity for coöperation on the part of the State, with such federal agencies, as Procurement and Assignment Service for Physicians, Dentists and Veterinarians of the War Man Power Commission which have been established and are functioning in coöperation with the several States to the end that temporary relocation of physicians, dentists and registered nurses may be effected to overcome acute shortages in specific localities from time to time. Recognizing the existence of such emergency, the Legislature deems it wise, for the protection of the health and welfare of the people of the State to give to the (Governor) (State Defense Council)* the power to provide for the temporary admission to practice in the state of physicians, dentists and registered nurses licensed as such outside the State upon conditions and under regulations prescribed by it notwithstanding the provisions of the law governing the examination, certification and licensing of out-of-state practitioners.

Section 2. Temporary Admission to Practice Medicine, Dentistry and Nursing. To accomplish the purpose set forth in Section 1, and notwithstanding any inconsistent provision of law, and the (Governor) (State Defense Council)* shall have power, by general regulations or specific order, to direct the appropriate licensing officers or bodies of the State to issue temporary emergency certificates to such physicians, dentists and registered nurses, licensed as such outside the State, as the (Governor) (State Defense Council)* shall believe qualified to practice as such in the state during such emergency. The holder of any such temporary emergency certificate shall be privileged during the term specified therein, unless sooner revoked, to practice his profession within the State subject, however, to all laws of the State generally applicable to the practice of such profession and to such regulations, restrictions, and area limitations as the (Governor) (State Defense Council)* may make or impose as to them or any of them and their practice within the State. No license fee shall be required by the State for the issuance of such certificates or practice thereunder.

Section 3. Effective Date; Termination. (See Section 8 of Emergency Statutory Suspension Act.)

*Substitute any state officer or body of officers and bodies that the respective states think best.

These arguments advanced in favor of the bill are as insidious and convincing as possible. They remind us of the careful build-up placing the Medical Profession on the defensive preceding Thurman Arnold's attack and indictments under the Sherman Anti-trust Law. We are now seeing articles in magazines and press insinuating that the shortage of doctors could be solved except for the "opposition" of Medicine itself. Witness: *Harpers,* November; *Saturday Evening Post,* December 12; *New York Times,* December 9, and many others.

Effects of Temporary Licenses

Granting of Temporary Licenses would throw the doors wide open for the refugees that have flocked into the eastern states, and for the graduates of substandard schools, to come to Michigan and get established while our confreres are in the armed forces fighting for the defense of many of these refugees and for us.

Years have been needed to build up the standards of American Medicine and no one, doctor or patient, would wish to return to what we have laboriously outgrown. The lowering of standards by admissions of graduates of schools not up to American standards would be a long step backwards. Temporary licenses will be opening wedges for permanent ones. After these men have become established they will never be turned out. The American people are too tolerant to again "disrupt the lives of those most unfor-

tunate ones who have been run out of their homes and who were so kind and considerate as to come to our midst in our time of need (too few doctors left in practice), and who now that the war emergency is over should not again be driven out." Presto! The American standard has been diluted. Our surveys in Michigan show no great needs exist. There are some localities where the doctors are rather thinly spread but approximately 20 to 30 doctors would fill our present needs. These could be transferred from Detroit if an appeal would be made to doctors there not too well satisfied with their present opportunities.

This measure will undoubtedly be introduced into the legislature that will be in session when this writing is published. In defense of our brothers in the service, and to protect the public from the avalanch of doctors less well prepared, and even without the grace of citizenship, we should oppose this move.

Thirty years or more ago provision was made in our basic law providing for qualified doctors licensed in other states, to secure licenses here by reciprocity. If these men whom it is contemplated will come here because of this law are properly qualified they can come here now without this law. If they are not properly qualified the state does not want them.

REFUGEE PHYSICIANS

■ THERE are over six thousand refugee physicians in the United States who wish to re-enter the practice of medicine. They cannot meet the requirements demanded by our states for licensure because of citizenship or other questions. It is suggested that our standards be changed and licenses be granted without charging a fee.

The Army and Navy need more doctors. There used to be a classification in the services of "Contract Surgeon" which these men could fill even though they are not citizens and consequently are not eligible for commission. We want only the best of physicians for our armed forces! Such employment of this backlog of idle physicians would be an advantage, for as contract surgeons they would be under direct control of well-trained officers. In civilian practice they would not be under adequate supervision.

The urge for more doctors to service civilian and industrial needs, as well as the military, is appreciated and this suggests a road to usefulness of a large group not now employed, and without legislative action.

SULFA DRUGS

During the other World War medical officers were required to "tag" all those patients who had received A.T.S.

Sulfa drugs are being freely used and we are seeing anaphylactic reactions, with temperatures of 106° and alarming prostration. A few days ago a doctor told us of a patient who died, as he believed, from too much of one of the sulfa drugs. Some days before he had treated this patient, administering sulfadiazine with alarming reaction, chills, fever and prostration. He withdrew the drug, but the patient soon went to another doctor who also gave the same drug, with disastrous results.

Are some of the sulfa drugs so apt to produce untoward symptoms that we should adopt a plan of marking these patients, or should we at least always question the patient before giving the drugs?

SELECTIVE SERVICE EXAMINATIONS

■ Two years have passed since the start of Selective Service and the Medical examinations of selectees. The first group was given very thorough examinations, and if one was rejected subsequently at the induction center, it was a matter of chagrin. We felt it was, partially at least, a reflection on our own thoroughness. We had been assigned a job, and we were doing it to the best of our ability. When we had accepted a man we wanted to know why he had been rejected, so studied the rejection slip. At that time we were examining under the same rules as the army at induction centers. The Medical examining boards were rejecting an alarming percentage of the men presented to them, and were questioning what could be done to make our young men more healthy, more perfect physically. Studies were being made as to rehabilitation, and suggestions offered. But that is all a matter of history.

New regulations were issued in April regarding the preliminary examinations, which were turned into a sort of screening. Examinations are now being made under an entirely different

set of rules than that under which the induction centers are working. We do not actually send in wooden legs, but under the rules we do send in glass eyes at present. D.S.S. Form 220 as revised 8-15-42, gives a list of diseases of the eye which disqualify a registrant, including "total blindness." The disqualifying ear conditions are: "Atresia of both external auditory canals" and "total deafness." Manifestly there will be many things found that will disqualify, such as chronic otitis media, loss of one eye, et cetera. Men with such defects cannot be taken into the Army, or at least have not been, yet they must be sent to the induction centers.

This whole examination has become so superficial that many of our examiners are of the opinion it should be changed in several respects or discontinued. The differences of scope of the selective service and the induction center examinations alone proves the need for change. One examination would, it is true, involve a little more travel, but with two and doing a real job as was done at first, much of the travel now necessary would be eliminated.

With so many doctors called to the armed forces it is getting difficult to find doctors with time to devote to these examinations as at present constituted. Those who do examine are willing to do a complete and patriotic service, but many in self-defense against the criticism of ineffective examinations have adopted the attitude that the whole thing is a joke, and tell the draftees outright their examination is not to find what defects are present, but "to find wooden legs and tin ears." The examiners would like again to feel that they were rendering a useful service, and as competent a service as they are capable of doing.

By a recent order the insignia of Navy Medical Officers qualified as Flight Surgeons is to be the traditional gold wings with a gold oak leaf and silver acorn superimposed on the central oval crest. This pin is worn over the left breast. The symbols of the oak leaf and acorn are associated with the Druids, ancient medical priests of the Britons, who wore white robes with these designs embroidered in gold on the sleeve. The Medical Corps of the Navy has used these insignias since 1832.—*Southwestern Medicine.*

IN MEMORIAM

DIED IN SERVICE

Claude E. Hale of Marshall was born in Chicago, Illinois, on January 20, 1896, and was graduated from the Vanderbilt University in Nashville, Tenn. He served his internship in General Hospital, Chicago. He was a veteran of World War I and had maintained his status as a reserve officer. He was called into active service in the summer of 1941, and for many months was stationed at Fort Sill, Okla. Later he was moved to Fort Custer, remaining for a short time prior to leaving for California and the South Pacific. At the time of his death, he was serving as an assistant regimental surgeon with an infantry division. He died somewhere in the South Pacific, on November 5, 1942.

Reuben Peterson of Duxbury, Massachusetts, was born in Boston, Massachusetts, on June 29, 1862, and was graduated from Harvard University Medical School in 1889. After graduation, he practiced in Grand Rapids for several years and later taught at Rush Medical College in Chicago. He then went to the University of Michigan as head of the department of obstetrics and gynecology. Dr. Peterson served his nation during World War I, holding the rank of major and having charge of organizing the state draft board's medical affairs. He was a fellow of the American Gynecological Society, of which group he was president in 1911. He was also president of the Chicago Gynecological Society in 1910. He was a fellow and one of the founders of the American College of Surgeons and was an honorary fellow of the Edinburgh Obstetrical Society. Dr. Peterson was professor emeritus of the University of Michigan department of obstetrics and gynecology since his retirement in 1931. He was the oldest living past-president of the Michigan State Medical Society at the time of his death, November 26, 1942.

Production of precision lenses, the "glass eyes" of gunsights, binoculars and other military instruments, has been greatly speeded by a diamond-impregnated grinding machine which automatically grinds curves or planes on glass. A wide range of curves can be ground with the device and from one to fifty lenses made in a single operation, depending on the size. The War Department is equipping certain plants with the device, it is reported.—*Science News Letter,* December 26, 1942.

YOU AND YOUR BUSINESS

ARE YOU WILLING TO BE DISLOCATED?

Frank H. Lahey, M.D., Chairman of the Directing Board of Procurement and Assignment Service, requested that the following statement be published so that it receives the attention of all Michigan physicians:

"It is of the utmost importance that the Procurement and Assignment Service for Physicians, Dentists, and Veterinarians, immediately has the name of any doctor who really is willing to be dislocated for service, either in industry or in over-populated areas, and who has not been declared essential to his present locality. This is necessary if the medical profession is to be able to meet these needs adequately and promptly. We urgently request that any physician over the age of 45 who wishes to participate in the war effort send in his name to the State Chairman for the Procurement and Assignment Service in his State."

★ ★ ★ BUY WAR STAMPS AND BONDS ★ ★ ★

MICHIGAN LOCALITIES NEEDING DOCTORS OF MEDICINE

According to the survey of availability of medical service for civilian needs being conducted through county medical society secretaries, the following localities need additional medical service. Physicians willing to be dislocated are invited to investigate the opportunities in these cities and counties:

Augusta
Climax
Clio
Delton
Eaton Rapids
Ferndale area
Fulton
Gladwin County
Hillman
Homer
Horton
Iron County
Ludington
Mendon
Missaukee County
Mt. Morris
Monroe
Muskegon
New Baltimore area
Rogers City and Presque Isle County
Royal Oak
Sault Ste. Marie and Chippewa County
Schoolcraft
Swartz Creek
Tekonsha
Vicksburg
Wexford County

★ ★ ★ BUY WAR STAMPS AND BONDS ★ ★ ★

POSTGRADUATE INDUSTRIAL, MEDICAL AND SURGICAL CONFERENCE

The Committee on Industrial Health of the Michigan State Medical Society and the Michigan Association of Industrial Physicians and Surgeons are planning a "Postgraduate Industrial Medical and Surgical Conference" for early spring. This one-day meeting will be held in Detroit and will include twelve interesting and instructive presentations of one-half hour each, from 9:00 a.m. to 5:00 p.m.

Ten round-table luncheon discussions will be held from 12:15 to 1:45 p.m.

The banquet in the evening will be addressed by an eminent speaker.

The full program will be presented in the next issue of the MSMS Journal.

This meeting is open to all members of the Michigan State Medical Society. There will be no admission charge.

★ ★ ★ BUY WAR STAMPS AND BONDS ★ ★ ★

ANNUAL COUNTY SECRETARIES' CONFERENCE

How Can the Medical Profession Meet Military, Industrial, Research, and Civilian Needs During Wartime?

Will Michigan Grant "Temporary Licenses" to Refugee Physicians?

Is Group Disability Insurance Desirable for Michigan Physicians?

What are the New Provisions in the Income Tax for 1942?

Are There Any Spies in Michigan?

How Does the Rationing Program Affect Michigan Physicians?

These are some of the topics that will be discussed at the Conference of County Medical Society Secretaries to be held at the Olds Hotel, Lansing, Sunday, January 24, 10 a.m. to 4 p.m. D. C. Bloemendaal, M.D., of Zeeland will preside at the meeting. The program appears on page 76.

All members of the Michigan State Medical Society will be welcomed at the County Secretaries' Conference, particularly the presidents, secretaries and editors of county medical societies, and the chairmen of committees of the State Society.

★ ★ ★ BUY WAR STAMPS AND BONDS ★ ★ ★

DOCTORS SHOW BATTLE TECHNIQUE

On September 5, the only medical field service school of its kind in any army gave a demonstration of medical work under mock battle conditions at Carlisle Barracks, Pennsylvania. As the Medical Corps is now organized, personnel of field service units are able to give aid to wounded combatants within a few minutes of the time they receive their injuries, at stations only 500 yards behind the lines.

Within ten minutes after a soldier falls, stretcher-bearers will be at his side to carry him back the 500 yards to a battalion aid station. Within six to eight hours, the wounded are moved through this station, the collecting station a mile behind the line, and the divisional clearing station, four to six miles to the rear, to a base hospital.

If necessary, operations can be performed at the collecting station, only a mile from the front. Appropriate treatment and nourishment are provided at all stages.—*J. Med. Soc. County of N. Y.*

MICHIGAN'S DEPARTMENT OF HEALTH

H. ALLEN MOYER, M.D., Commissioner, Lansing, Michigan

HIGHLIGHTS OF TWENTY-SECOND ANNUAL PUBLIC HEALTH CONFERENCE

Michigan's Twenty-second Annual Public Health Conference held in Grand Rapids, November 12 and 13, was attended by 386 health officers, public health nurses, sanitarians and allied professional workers from all over Michigan. It was a shortened, intensified, working conference with public health in wartime as its theme.

Some of the highlights of the group discussions that occupied the two sessions of the conference follow:

A good wartime program in public health is a good peacetime program. These are changes in emphasis but the objectives are the same.

Some of the maternal and child health needs of wartime are increased use of women in industry, day care of children of women in industry, decrease in available medical care, shorter hospitalization of maternity cases, new demands on the time of the public health nurse, anticipated rationing of foods, concentration of population in industrial centers and shifting of population and the prospect of early entry into war activities of high school seniors.

Three "musts" imposed upon every health department are: (1) communicable diseases must be controlled; (2) more attention must be given to industrial hygiene; (3) effort must be made to aid in the rehabilitation of men rejected for military service.

Coöperative planning on the part of community agencies is essential in conserving the health worker's time for specialized tasks.

Health departments and civilian defense organizations should work closely together to secure the advantages of combined effort, thinking and action. The objectives of the health department are in essence civilian defense and protection.

ESCANABA'S NEW WATER SUPPLY MAY PREVENT TOOTH DECAY

Escanaba school children are supplying facts on tooth decay which may help in overcoming loss of teeth from such cause in the future.

The U. S. Public Health Service, University of Michigan and Michigan Department of Health are studying mouth conditions of Escanaba children, seeking particularly to measure discovered amounts of acid-forming bacteria which cause decay.

The Escanaba study has been undertaken because the projected use of fluoride-bearing water by that city in the future will afford a basis of comparison with mouth conditions found there now.

Dentists know that fluorides can lessen tooth decay. If they are present in too great quantity, and if children use such water while permanent teeth are being formed, they may cause mottling.

Escanaba now obtains its water supply from Bay de Noc. Wells have been driven to obtain a more satisfactory supply. These wells produce water containing one-half part per million of fluorides. The wells will be put into operation soon.

Records obtained in the present study will offer a basis for comparison of the effects of fluoride-bearing water when Escanaba's new water supply is put into use.

MICHIGAN HAS NEW PROBLEM IN CONTROL OF TUBERCULOSIS

A growing number of newly-discovered cases of tuberculosis in Michigan with a consequent shortage of sanatorium beds presents a new problem in the control of tuberculosis.

Pre-employment examinations of industrial workers, Selective Service examinations and photo x-rays taken in the State Health Department's traveling photo x-ray bus are uncovering hundreds of new cases each month. This year more than 5,000 were reported by the end of November.

With few exceptions, all approved tuberculosis sanatoria in the state have waiting lists of men and women in need of immediate sanatorium care.

REFRESHER COURSE PLANNED FOR PUBLIC HEALTH NURSES

A wartime shortage of nurses in rural areas may be met by action of the Michigan Department of Health in arranging a six weeks' refresher course for inactive public health nurses. The first two weeks, with enrolled nurses gathered in Lansing, will be a lecture period with emphasis placed on emergency adaptation of public health nursing procedures in communicable disease control, including tuberculosis and venereal disease, maternal and child health and school nursing, to be followed by a minimum of one month of training in the field with organized health departments.

The course will open next month and those nurses who complete it will be placed with health departments in rural areas.

A pill box which dispenses only one pill at a time has been recently patented. One pill at a time pops from a small opening in the molded, pocket-size container, the remainder being inaccessible and protected from dust and other contamination.—*Science News Letter,* Jan. 2, 1943.

Sinus sufferers may soon wear their heat treatment to bed with them. An electrically heated mask has recently been patented for this purpose.—*Science News Letter,* Jan. 2, 1943.

Woman's Auxiliary

MID-YEAR BOARD MEETING OF A.M.A. AUXILIARY

The midyear board meeting of the Woman's Auxiliary to the A.M.A. was held in Chicago, November 20, at the Palmer House. There were forty members present which well represented the interest and effort members made to attend the meeting during these troublesome times with traveling so difficult.

Mrs. Frank N. Haggard, national president, read her report in which she stated that "Health For Victory" should be our theme this year.

Every effort should be made to create greater unity of Auxiliary work, through war work and nutrition. The greatest danger to our country is the danger of disease both at war and at home. She also recommended that local dues for army wives be waved and that some method be devised by local auxiliaries to take care of National and State dues.

Mrs. George R. Dillinger, *Hygeia* chairman, reported that the magazine was becoming more important by taking a new and important place in industry, as many defense factories are now buying the magazine for its members and many first-aid teachers are urging their classes to buy *Hygeia.* She urged that every effort be made to place this magazine before the public.

The importance of legislation was stressed by Mrs. Luther H. Kice, who said, "We are confronted by uncertainty and confusion. It is our duty to show the states and counties the right path. In order to accomplish this we must study the outline of the political setup of government and be familiar with national interest, especially those pertaining to be under the control of physicians."

The continued effort to promote and circulate the subscription to the *Bulletin* was urged.

At the luncheon Dr. W. W. Bauer said the transportation problem was making speaking engagements very difficult to provide. Every effort will be made by the AMA to provide speakers, if audiences of 1,000 or more could be arranged to justify a personal appearance, or that material may be sent on request. Dr. Bauer urged that interest be created in the radio program, "Doctors At War."

Due to the national emergency it was voted that the members of the executive board and delegates meet in Chicago June 7, 8, 9, 1943, at the Drake Hotel to transact any business necessary.

The state presidents gave interesting reports of their work and activities. Outstanding were the emphasis on health education, war work, and legislation.

A resolution was introduced recommending the adoption of the Georgia Auxiliary plan of Doctors' Aides, and to present it at the national meeting in June, with the approval of the Advisory Council, which was unanimously accepted. The plan is in keeping with the mobilization of women in war effort. The Doctors' Aides developed out of the need of something that doctors' wives might do to aid the profession of which they are a part. This service is limited to members of the medical auxiliary who are willing to undergo a course of training for this purpose. The Doctors' Aides will earn, through study and service, the right to wear the medical insignia. The course of study is to be developed out of the need of the community.

Your president feels that this is a worth-while activity and hopes that it may be accepted by every county in Michigan.

Mrs. Wm. J. Butler, Director of the Woman's Auxiliary to A.M.A., will report the remainder of the proceedings.

In closing may I say that it was a very inspiring day and I consider it a great privilege to have been able to attend.

Respectfully submitted,

MRS. G. L. WILLOUGHBY, *President*

MID-YEAR BOARD MEETING OF MSMS AUXILIARY

The mid-year Board meeting of the Woman's Auxiliary to the Michigan State Medical Society was held November 30, 1942, at the Durant Hotel, Flint, Michigan.

Mrs. G. L. Willoughby, president, was in Baltimore with her husband who is in the Army, and in her absence Mrs. H. L. French, vice president, presided at the meeting which followed luncheon. Nineteen members were present.

The *Auxiliary News* has been mailed to all county presidents to be distributed to the members.

Mrs. Milton Shaw, president of Ingham County, reported that their chapter had placed fifty *Hygeia* subscriptions in the schools, had given $100 to the Red Cross, and are to send Christmas boxes to their doctors in the service.

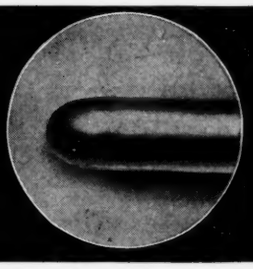
Kent County Auxiliary raised $350 for comfort kits for soldiers, and Saginaw County Auxiliary writes a monthly news letter for their doctors in service.

The Wayne County Auxiliary has furnished a day room at Fort Custer.

The Woman's Auxiliary is sponsoring a Radio Speech Contest in the high schools of Michigan, promoted by the Tuberculosis Association. Forty-eight schools are participating.

An elastic yarn with many of the characteristics of rubber has been produced synthetically and the present output is being used for military equipment. The new material, a vinylite resin, is said to be superior to rubber because it has better resistance to sunlight, tropical heat and humidity, and is not affected by body acids. Experiments indicate that the yarn can eventually be used to replace rubber in consumer goods, such as elastic webbing, women's girdles, suspenders, and surgical stockings.—*Science News Letter,* Dec. 12, 1942.

RADON SEEDS



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COUNTY AND PERSONAL ACTIVITIES

H. H. Cummings, M.D., President of the Michigan State Medical Society, was appointed Chairman of the Department of Postgraduate Medicine and Professor of Postgraduate Medical Education by the Board of Regents of the University of Michigan, on December 17, 1942.

Congratulations, Professor Cummings!

* * *

Sue Hurst Thompson, M.D., formerly Health Officer of District No. 2, Michigan, has been appointed Head of the Columbia County Health Unit, New York.

* * *

The Physicians' Service Laboratory, of which M. S. Tarpinian, B.S., is Director, have removed their offices to more roomy quarters at 610 Kales Building, Detroit.

* * *

Albert Wilhelm Petersohn, M.D., of Battle Creek has contributed $25 to the Michigan State Medical Society Foundation for Postgraduate Medical Education.

* * *

K. E. Markuson, M.D., Chairman of the MSMS Industrial Health Committee, addressed the Wexford County Medical Society on December tenth. His subject was "New Problems in Industrial Health."

Nancy Harkness Love of Boston, Director of the WAFS (the Woman's Auxiliary Ferrying Squadron) is the daughter of Robert Bruce Harkness, M.D., of Hastings.

* * *

Sister Elizabeth Kenny of Australia was awarded the Gold Key by the American Congress of Physical Therapy as the person "who has made the greatest contribution in the field of physical therapy during the past year."

* * *

F. D. German, M.D., of Pontiac, Michigan, is a Fellow in Postgraduate Medicine of the Michigan State Medical Society. His name was not published in the list of Fellows which appeared in the September MSMS JOURNAL.

* * *

Martin H. Hoffman, M.D., has offered his resignation, effective February 1, 1943, as Director of the Psychiatric Clinic at Eloise Hospital and Head of the Wayne County Psychopathic Parole Clinic. Dr. Hoffman will return to private practice in Detroit.

* * *

"Doctors At War" is the title of the weekly radio presentation of the American Medical Association and

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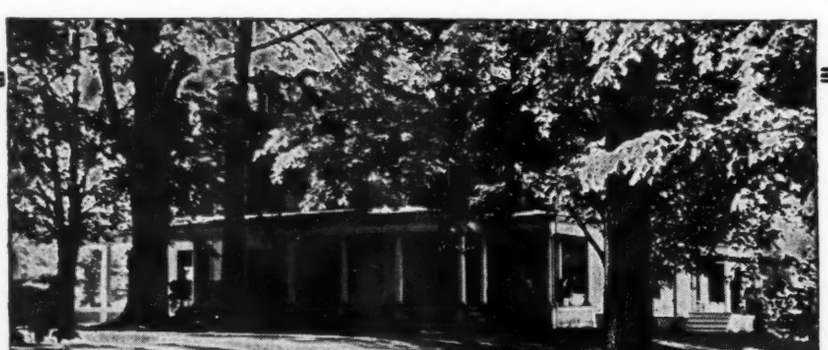

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the National Broadcasting Company. This coast-to-coast NBC broadcast of twenty-six weeks, which began December 26, is given Saturdays, 5:00 p.m., EWT. It features "The Doctor in the Army, in the Navy, in Industry, and at home."

* * *

The Medical Society of the State of New York cordially invites the members of the Michigan State Medical Society to attend its annual meeting set for May 3 to 6, 1943, at the Hotel Statler in Buffalo. Scientific sessions begin on the morning of Tuesday, May 4, and continue through Wednesday, May 5, and Thursday, May 6.

* * *

R. M. Nesbit, M.D., and *Robert H. Cummings, M.D.,* Ann Arbor, are authors of an original article entitled "Prostatic Carcinoma Treated by Orchidectomy" which was published in the December 5 *Journal of the American Medical Association.*

W. E. Jahsman, M.D., Detroit, is the author of "Follicular Lymphoblastoma" which appeared in the same number.

* * *

No Age Limit on Malpractice Insurance.—The Aetna Life Insuurance Company, the Medical Protective Company, and the U. S. Fidelity and Guaranty Company have advised the Michigan State Medical Society that their restrictions to certain risks because of age (for example, to physicians over 70 years) will not exist for the duration in the case of active practitioners of medicine. These companies are commended on this action.

* * *

The Fifth Annual Congress on Industrial Health, sponsored by the Council on Industrial Health of the American Medical Association, was held in the Palmer House, Chicago, January 11-13, 1943. Leaders in the industrial health field found this to be one of the most important conferences touching a vital medical problem of the nation's war effort. Michigan was well represented at the conference.

* * *

The American Urological Association at its Executive Session of June 3, 1942, recommended that all educational institutions in the United States which prepare students for the study of Medicine should teach a minimum of two years of Spanish and/or Portugese, as an attempt to obviate linguistic difficulties existing between the Latin American and English speaking countries of the western hemisphere.

* * *

C. E. Umphrey, M.D., Detroit, has been appointed as the representative of the Michigan State Medical Society on the Medical Advisory Committee to the State Council of Defense, effective December 17. The appointment was made by President H. H. Cummings, M.D., to fill the place left vacant by the resignation of P. R. Urmston, M.D., who had served as the State Society representative since the formation of the Defense Council's Advisory Committee.

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The National Conference on Medical Service will be held at the Palmer House, Chicago, on Sunday, February 14.

All members of the profession are invited to this economics conference, particularly important during wartime. A copy of the program may be obtained from W. L. Burnap, M.D., Secretary of the National Conference, Fergus Falls, Minnesota.

* * *

Your Friends—

Detroit X-Ray Sales Company, Detroit, Michigan
Doho Chemical Corporation, New York, N. Y.
Duke Laboratories, Inc., Stamford, Connecticut
E and J Resuscitator Company, Detroit, Michigan
J. H. Emerson Company, Cambridge, Massachusetts
H. G. Fischer & Company, Chicago, Illinois
C. B. Fleet Company, Lynchburg, Virginia
General Electric X-Ray Corporation, Detroit, Michigan
Gerber Products Company, Fremont, Michigan
Hack Shoe Company, Detroit, Michigan

The above ten firms were among the exhibitors at the 1942 MSMS annual meeting in Grand Rapids and helped make possible for your enjoyment one of the outstanding state medical meetings in the country. Remember your friends when you have need of equipment, medical supplies, appliances or services.

* * *

Military Membership in the Michigan State Medical Society is granted only to Active Members in good standing with State Society dues paid *for a full year,* who are serving their country in the armed forces of the United States. They are relieved of paying MSMS dues during the period of such active service if certified by the county society on special MSMS blanks. Members who have already paid their dues for the current year and during that year are called into active military service shall be accorded, upon their return home, one year's membership without the payment of MSMS dues.

Newly-elected members must pay one full year's dues in order to be eligible for military membership.

* * *

Medical exhibits for medical societies are available on a loan basis from the American Medical Association, 535 No. Dearborn Street, Chicago. Write T. H. Hull, Director, Scientific Exhibits. Some of the subjects of exhibits are: "Heroes of Medicine"; "Tularemia"; "Food Fads"; "Chemistry of Vitamin K and Synthetic Hormones"; "Use and Abuse of Barbiturates"; "Chemistry of the Gastric Antacids"; "Chemistry of the Sulfonamide Drugs"; "Posture"; "Amputations"; "Dietary Deficiency Diseases"; "Industrial Health Program for a County Medical Society"; "Cutaneous Manifestations of Tuberculosis"; "Cutaneous Granulomas"; "Cutaneous Manifestations of Syphilis"; "Pneumoconiosis"; "Asbestosis"; and "Silicosis."

* * *

The Bay County Medical Society recently presented past-presidents' keys to its 24 living past-presidents. Charles H. Baker, M.D., Past-President of the Michigan State Medical Society, as well as of the Bay County Medical Society, read an address on "Early Medicine in Bay County." Keys were presented to: Charles H. Baker, M.D.. 1887; William Kerr, M.D., 1895; V. L.

Tupper, M.D., 1907; W. R. Ballard, M.D., 1908; R. C. Perkins, M.D., 1912; G. W. Moore, M.D., 1913; J. C. Grosjean, M.D., 1916; R. C. Scrafford, M.D., 1920; G. M. McDowell, M.D., 1921; A. J. Zaremba, M.D., 1922; E. C. Warren, M.D., 1923; P. R. Urmston, M.D., 1924; V. H. Dumond, M.D., 1926; C. W. Ash, M.D., 1930; M. R. Slattery, M.D., 1932; E. S. Huckins, M.D., 1933; J. H. McEwan, M.D., 1934; S. L. Ballard, M.D., 1935; M. C. Miller, M.D., 1936; A. D. Allen, M.D., 1937; C. L. Hess, M.D., 1938; L. Fernald Foster, M.D., 1939; R. H. Criswell, M.D., 1940; and R. N. Sherman, M.D., 1941.

* * *

The Genesee County Medical Society is distributing a leaflet entitled "Save Your Health and Your Doctor's Time." The leaflet states: "Here's How:

"1. Instead of asking the doctor to come to your home, go to his office when you can.
"2. If a house visit is necessary, call the doctor before 8:30 in the morning so that he can plan his house calls efficiently. A morning temperature is usually followed by a higher one in the afternoon.
"3. Don't neglect to inform your doctor of the early signs of sickness. A timely visit to your doctor may prevent serious illness, numerous house calls —even hospitalization.
"4. Whenever possible, leave the message with the doctor's secretary. Don't call him personally to the phone unless it is really necessary.
"5. Be patient with your doctor if you have to wait in his office, or if he does not respond at once to your call. Remember that he is caring for many more patients than formerly, and he has only twenty-four hours in his day."

* * *

Rheumatic Fever and Heart Disease—An interesting program has been launched by the American Heart Association, the Academy of Pediatrics, the Crippled Children's Division of the U. S. Children's Bureau, and by the Metropolitan Life Insurance Company, the purpose of which is twofold: to acquaint the public with the newer knowledge of rheumatic fever and rheumatic heart disease; and to distribute to the medical profession up-to-date literature covering various aspects of the rheumatic fever problem.

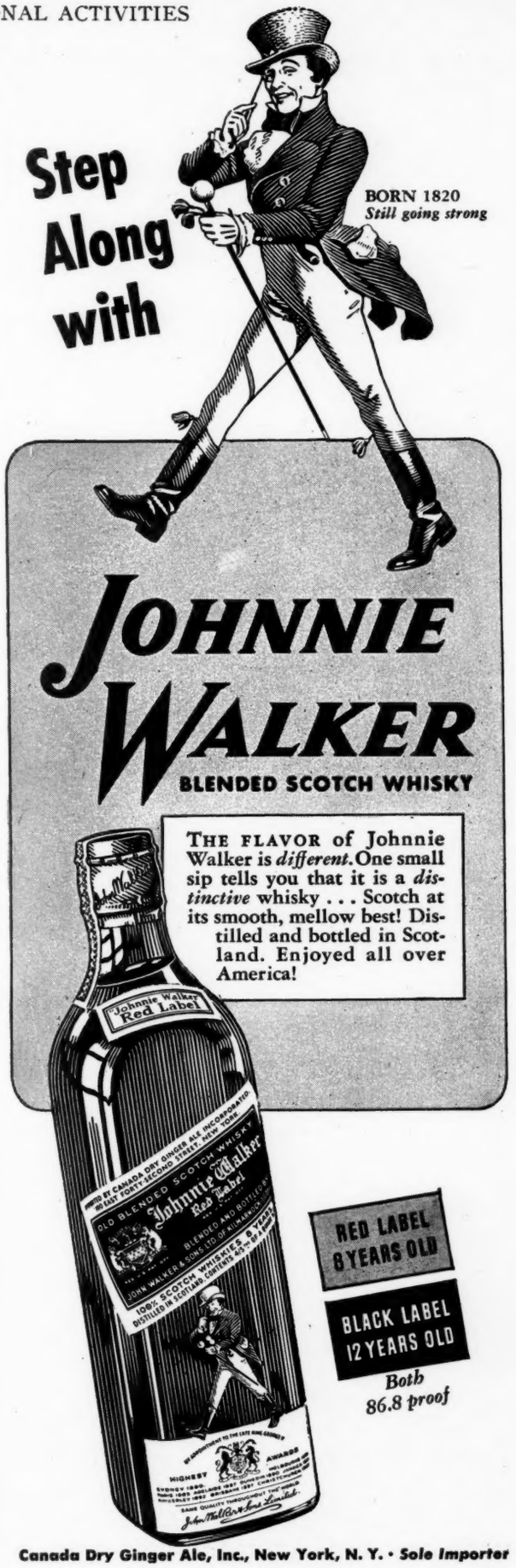
* * *

The Detroit Medical News, official organ of the Wayne County Medical Society, ran an interesting analysis in the November 23 issue of "Medical Facilities in Wayne County." It showed that the normal supply of physicians in Wayne County before the military emergency was 3,013; that 832 physicians are in military service (as of October 14, 1942), leaving a balance remaining in Wayne County in all classifications of 2,181.

The total number of hospital beds in Wayne County amounts to 21,777, including 714 in federal hospitals.

* * *

The "Health for Victory Conference" sponsored by the Wayne County Medical Society and held at the Rackham Educational Memorial Building in Detroit on December 4 and 5, was a most successful and educationally-profitable venture. Speakers included G. L. McClellan, M.D., President of the Wayne County Medical Society; C. E. Simpson, M.D., immediate Past-Presi-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dent, W.C.M.S.; Mayor Edward J. Jeffries, Jr.; H. H. Cummings, M.D., President of the Michigan State Medical Society; Emily E. Sargent, R.N., Chairman of the Michigan Nursing Council for War Service; Graham L. Davis, President of the Michigan Hospital Association; John R. Mannix, Director of Michigan Hospital Service; R. L. Novy, M.D., President of Michigan Medical Service; Bruce H. Douglas, M.D., Detroit Commissioner of Health; Paul Rankin, President of the Council of Social Agencies; W. W. Bauer, M.D., Director of the Bureau of Health Education of the A.M.A., Chicago; T. M. Doll, President of the Wayne County Industrial Union Council, CIO; and Charles T. Taft, Assistant Director of Defense Health and Welfare Service, Office of Emergency Management, Washington, D. C.

* * *

One Hundred and Seventy-seven Rejectees Hospitalized.—Selective Service physical examinations have resulted in the hospitalization in recent months of 177 Michigan men with active tuberculosis. These men represent more than 90 per cent of the 201 cases of active tuberculosis which have been found among the 1,651 Michigan selectees turned down as "chest rejects" by Selective Service examiners since the draft law went into effect.

On December 1, 1942, local departments of health were arranging for reëxamination on 568 additional names. The yield for those cases that have already been reëxamined is 23 per cent (requiring sanatorium care). There is every reason to believe that the yield on these 568 cases with reëxamination pending will be approximately the same. In other words, 125 more cases will require hospital care when these remaining 568 have been checked through. From the public health standpoint, this is highly worthwhile, since there is probably no other group in tuberculosis case finding that would bring a higher yield than this.—Mich. Dept. of Health, Dec. 17, 1942.

* * *

Urology Award—The American Urological Association offers an annual award "not to exceed $500" for an essay (or essays) on the result of some specific clinical or laboratory research in Urology. Competitors shall be limited to residents in urology in recognized hospitals and to urologists who have been in such specific practice for not more than five years.

The selected essay (or essays) will appear on the program of the forthcoming meeting of the American Urological Association, May 31-June 3, 1943, Hotel Jefferson, St. Louis, Missouri.

Essays must be in the hands of the Secretary, Dr. Thomas D. Moore, 899 Madison Avenue, Memphis, Tennessee, on or before March 1, 1943.

* * *

Doctor Fined—On Probation

Fines of $600 each on two indictments and a probation period of three years on the third count was the sentence for Dr. William A. Kopprasch, Allegan physician, who appeared before Judge Fred T. Raymond in Grand Rapids federal court Tuesday after pleading guilty. A sentence of two years in prison was suspended on condition that the fines are paid within forty-eight hours.

Say you saw it in the Journal of the Michigan State Medical Society

Kopprasch was indicted by a federal grand jury in October on charges of sending large quantities of dilaudid through the mails. He was specifically charged with having sent the dilaudid on three different occasions, which resulted in the three indictments. Dilaudid is an opium derivative.

Kopprasch sent the dilaudid to Jacob H. Fisher, Detroit, who later died, but it was pointed out by the Allegan doctor's attorneys that Fisher could have died from any one of a number of ailments.

He had pleaded not guilty originally but during his trial last week changed the plea after the government had presented its case against him.

Kopprasch, forty-nine, has been in Allegan a number of years and has operated the John Robinson hospital for the past ten years or more.—*Allegan Gazette,* November 20, 1942.

The doctor in question is the one who has been used by a certain attorney specializing in medical malpractice cases to establish the medical testimony necessary to get the case in court.

Keep It That Way.—More members of the medical profession are going into military service every day. Young doctors just out of medical school, doctors who have barely established themselves in the community, and long-established men who would soon begin to shift the burden of their practice to new partners, are donning uniforms. For the medical men remaining at home, the task will become gigantic. But one and all they are grimly determined that essential medical care will be provided to civilians.

There are many ways in which the layman can help in this medical crisis. He can guard his own physical well-being by keeping regular hours and eating and sleeping properly. He can be tolerant if he is kept waiting for an appointment. And he should follow stringently the advice of his physician in order to return himself to full usefulness as soon as possible. These are the tangible ways in which the layman can help the doctor.

In addition, there is a vast intangible aid that we can give our medical men. We can keep in mind the fact that they are a part of the system of private medicine that has doubled the span of life for the ordinary citizen in a comparatively few years. The doctors in the armed forces, just as the ones staying at home, spent years in training and more years interning because competence and efficiency are the very foundation stones of our medical system. THERE IS NO TAINT OF "ISM" OR POLITICS IN THEIR BLOOD. The worst disservice we could do them in their absence would be to lend ear to crackpot schemes to inject political control of any form whatsoever into the medical profession. As it stands today, AMERICAN MEDICINE GIVES US THE BEST CARE IN THE WORLD. LET'S KEEP IT THAT WAY.—*Greenville Daily News,* Nov. 17, 1942.

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GYNECOLOGY—Two Weeks' Intensive Course starting April 5; Clinical and Diagnostic Courses.

OBSTETRICS—Formal and Informal Courses.

OTOLARYNGOLOGY—Two Weeks' Intensive Course starting April 19. Clinical and Special Courses.

OPHTHALMOLOGY—Two Weeks' Intensive Course starting April 5.

ROENTGENOLOGY—Courses in X-Ray Interpretation, Fluoroscopy, Deep X-Ray Therapy every week.

UROLOGY—Two Weeks' Course and One Month Course available every two weeks.

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ANNUAL COUNTY SECRETARIES' CONFERENCE

January 24, 1943—Lansing

Hotel Olds, 10 A.M. to 4 P.M.

D. C. Bleomendaal, M.D., Chairman, Presiding

J. W. Holloway M. E. Lapham H. R. Gordon

Morning

1. The Rationing Program as it Affects Physicians—EDWARD T. BROADWELL, Rationing Director, OPA, Detroit, Michigan.
2. Are There Any Spies in Michigan?—CAPTAIN HAROLD MULBAR, Michigan State Police, East Lansing, Michigan.
3. The New Federal Income and Victory Tax Law—J. W. HOLLOWAY, JR., LL.B., J.D., Bureau of Legal Medicine, American Medical Association, Chicago, Illinois.
4. Facts for the Physician—L. FERNALD FOSTER, M.D., Secretary, Michigan State Medical Society, Bay City, Michigan.

Question and Answer Period

Cocktails and Noonday Dinner

5. Greetings from—HARRY F. KELLY, LL.B., Governor of Michigan.
6. How the Medical Profession Can Meet Military, Industrial, Research, and Civilian Needs During Wartime—M. E. LAPHAM, M.D., Procurement and Assignment Service, Washington, D. C.

Afternoon

7. Your Disability Insurance Dollar—How to Make the Most of It.—HAROLD R. GORDON, Executive Secretary, Health and Accident Underwriters Conference, Chicago, Illinois.
8. "Temporary Licenses" and Dislocating of Physicians—J. EARL MCINTYRE, M.D., Secretary, Michigan State Board of Registration in Medicine, Lansing, Michigan.

Question and Answer Period

THE DOCTOR'S LIBRARY

Acknowledgment of all books received will be made in this column and this will be deemed by us as a full compensation of those sending them. A selection will be made for review, as expedient.

CONSTITUTION AND DISEASE. Applied Constitutional Pathology. By Julius Bauer, M.D., Professor of Clinical Medicine, College of Medical Evangelists, Los Angeles, California, formerly Professor of Medicine, University of Vienna. New York: Grune and Stratton, 1942. Price, $3.50.

This volume is based upon the lectures given at the University of Vienna between 1923 and 1938 in the author's courses for American students on the subjects of Constitutional Pathology, and considers such problems as obesity, blood pressure, overweight in teen age, menopause, cancer as related to people of different constitutions. He adopts his diagnostic and therapeutic efforts to the individual rather than the disease. The role of heredity on certain diseases is stressed: genetics, endocrine types, psychoanalysis, all are given their place. The book makes one think and stimulates further study.

FUNDAMENTALS OF PSYCHIATRY. By Edward A. Stretcher, M.D., Sc.D., F.A.C.P., Professor of Psychiatry and Chairman of the Department, Undergraduate School of Medicine, University of Pennsylvania; Psychiatrist to the Pennsylvania Hospital. 15 Illustrations. Philadelphia: J. B. Lippincott Company, 1942. Price, $3.00.

With the shortage of doctors due to the needs of the armed forces and the threat of rationing of doctors to the armed forces and the civilians "it becomes necessary that all physicians be versed not only in the routine of medical practice, but have at least a minimum of understanding of the subdivisions and specialties of medicine." This comes at a time when psychiatry has something more to offer than during our school days. This book is a frank and concise treatise on this for so long mysterious subject. "Probably not less than one-half of all mental diseases finds a satisfactory explanation in the same basic causes which are operative in all diseases—lues, arteriosclerosis, intoxications and autointoxications, trauma, et cetera." This book gives a rapid survey of the field, pointing out indications, treatments, and diagnostic methods. It takes five years to train a physician to be a psychiatrist, but every physician can and should secure a working grasp of the essentials. The style is good, clear, and precise.

DOCTORS OF THE MIND. The Story of Psychiatry. By Marie Beyton Ray. Illustrations by Ruth Ray. Boston: Little, Brown and Company, 1942. Price, $3.00.

Mrs. Ray has made the development of psychiatry as interesting as a well-written novel. She has told the story of much groping in the dark and the gradual lifting of the curtain on the study of the mind. The first few pages are of an introductory nature and are a bit profound. Witness: "When a human being ceases to acquire words, he has reached the ceiling of his intelligence. He will go on thinking but only with the ideas (words) he has already acquired. The larger the vocabulary of an individual, the higher his intelligence."

Following this introduction we meet young Dr. Paul Broca and his man "Tan" in 1861 making an intensive

study of the man during his last few days because of the early loss of speech, then studying the brain to determine the center of speech, Broca's convolution. That is a fascinating story wonderfully told.

In 1940 we see Dr. Vincent in Paris operating on Mme. Berthier who has grown ugly, ill tempered, menacing, incoherent. For eight hours under local anesthesia Dr. Vincent works on that brain, and finishes with a normal, charming woman as she had been, who has witnessed the change in her own personality.

Mesmer is introduced, with his animal magnetism, being expelled from the medical faculty of Vienna. Freud, Dr. Sakel with his insulin shock for the relief of schizophrenia, Meduna and his metrazol, Pinel who cut the chains restraining lunatics. But read the book, you will find it most interesting and entertaining. Mrs. Ray has made psychiatry entertaining.

FIRST AID, SURGICAL AND MEDICAL. By Warren H. Cole, M.D., F.A.C.S., Professor and Head of the Department of Surgery, University of Illinois College of Medicine, and Charles B. Puestrow, B.S., M.S., M.D., Ph.D., F.A.C.S., Associate Professor of Surgery, University of Illinois College of Medicine and Graduate School. Illustrations by Carl Linden in collaboration with Tom Jones of the Illustration Schools of Illinois College of Medicine. New York: D. Appleton-Century Company, Incorporated. 1942. $3.00.

The War has made first aid of primary importance to all medical practitioners, and schools are stressing the subject. Marked increase in industrial development and automobile accidents had already made this subject of general value. There is a difference between first aid and treatment and this is stressed by these authors. Most of the text is devoted to emergencies related to conditions created by war, not only this one but the former when poisonous gases were first used. The first part of the book considers general principles and when first aid should be given, the underlying anatomical and physiological conditions, and techniques. Bandaging is taught as the means of accomplishing certain objectives, rather than an art. Wounds, shock, transfusions, bleeding, burns, fractures, transportation of the injured are all given important treatment. Special attention to transportation—the treatment of first indications and determination of seriousness of injury before the victim is moved, is stressed. War gases, bomb raids, and many commoner emergencies are studied. This book is well illustrated and very readable. It contains about 350 pages, and is carefully indexed for ready reference.

MENTAL ILLNESS, A Guide for the Family. By Edith M. Stern, with the collaboration of Samuel W. Hamilton, M..D New York: The Commonwealth Fund, 1942. $1.00.

Insanity is described and considered throughout this little book as a mental illness, the same as a person can have a physical illness. The book is written by an author who has made extensive studies of mental hospitals and their problems. Nothing is said as to diagnosis or specific treatment. The book is written for the layman, who is so unfortunate as to have a mentally ill person in his family, giving information on when and how to hospitalize, also where. Different kinds of hospitals are described, as is also the handling of the patient before he is hospitalized, during the period of mental illness, and afterward when the patient is finally released, as fully 50 per cent are in most of

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our better mental disease hospitals. In reading the book one feels as though Mrs. Stern has been talking to the reader, giving one a feeling of reassurance. Every family who has a mental illness patient should have this book, and should read it.

HUMAN PATHOLOGY. By Howard T. Karsner, M.D., Professor of Pathology, Western Reserve University, Cleveland, Ohio. Sixth edition completely revised and reset. Pp. 817. 460 illustrations in black and white and 24 subjects in color on 16 plates. Philadelphia, Montreal and London: J. B. Lippincott Company, 1942. Cloth, $10.00.

This book has reached its sixth edition, which in itself sets this publication apart as a standard accepted book on pathology. It can be recommended for the medical student, and for the clinician who wishes to familiarize himself with the underlying principles, mechanisms, and processes of disease. This edition has been modernized and brought up to date.

The author adheres strictly to accepted theories, principles and facts which he presents in a concise manner. The essentials of pathology are well covered as well as some of the more rare conditions. For example, a brief description is given of progressive bacterial synergistic necrosis. This condition is occasionally encountered by the surgeon postoperatively and its treatment presents a real problem unless recognized in its true light.

Conciseness, often with definition briefness, characterizes this work. Such diseases as malaria and yellow fever are described too briefly for clarity and understanding for those not familiar with the pathology of these disorders. Grading of tumors indicating the degree of malignancy is only briefly outlined. Today the average surgeon is as much interested in the grade of the tumor as he is in the diagnosis itself. Grading of tumors may not be applicable to all forms of tumors or have the prognostic significance that it was thought to have when first introduced, yet the clinicians have adopted it as a working basis.

Placing the references at the end of each chapter makes a convenient arrangement. References are selected from English publications only, and while these do not completely cover the literature on a given subject they suffice for all except those wishing to prepare original articles.

MILITARY MEDICAL MANUALS—Manual of Dermatology: Issued under the Auspices of the Division of Medical Sciences of the National Research Council. By Ronald M. Pillsbury, M.D.; Marion B. Sulzberged, M.D.; Clarence S. Livingwood, M.D. 421 pages with 109 illustrations. Philadelphia and London: W. B. Saunders Company, 1942. Price, $2.00.

This Manual of Dermatology is another of the Military Manuals produced for the use of the Military. It is small, of pocket size and sufficiently complete. It contains thirteen charts showing the distribution of skin diseases, and their diagnosis by distribution. There are eighty-one full-page illustrations of dermatological conditions. Following this is the text, description, diagnosis, treatment. An appendix gives over eighty formulas and medicaments with their indications. The volume is expertly prepared and edited; printed in good type on nonglaze paper, suitable for quick consultation.

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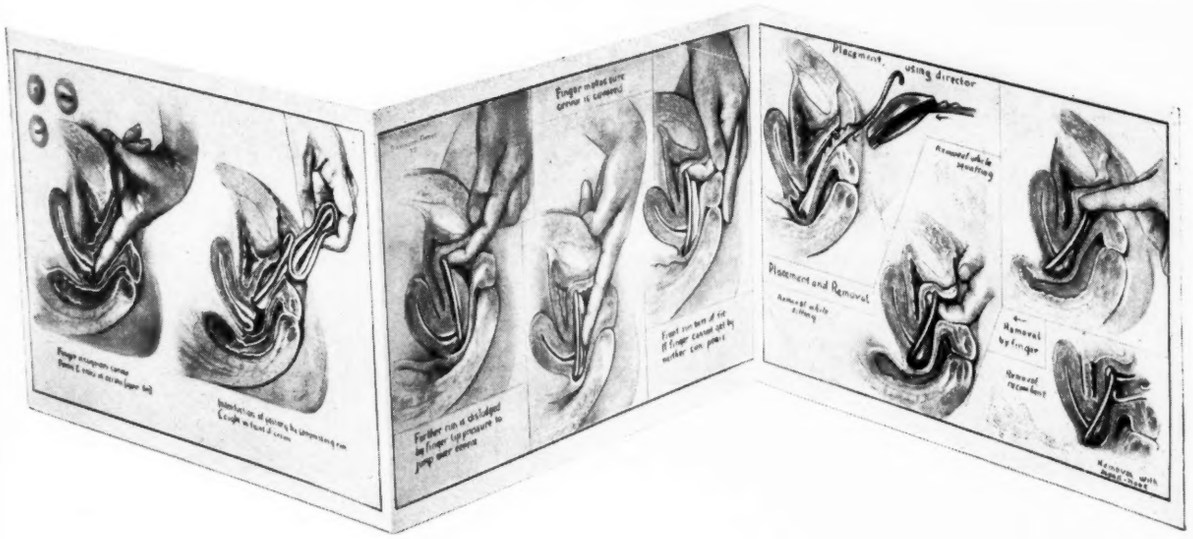

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